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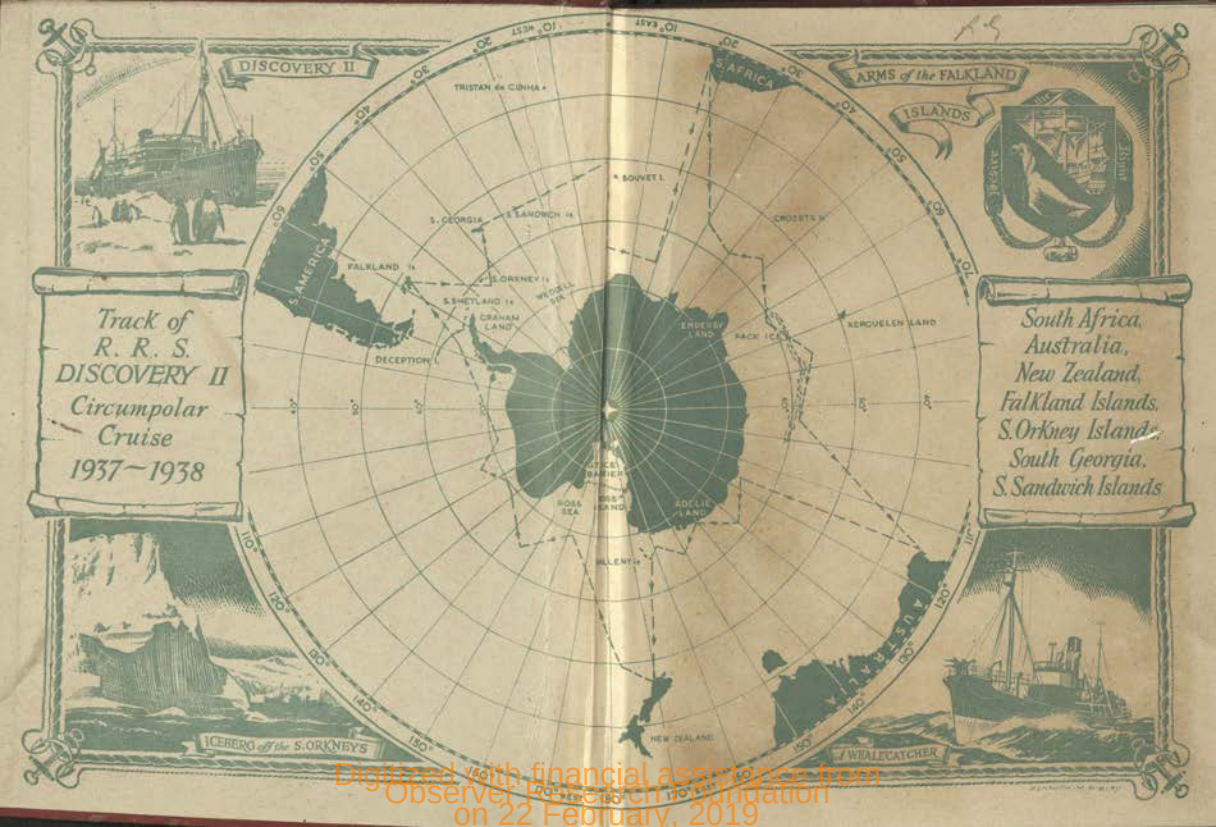

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A Camera in Antarctica

Ring penguins and chicks nesting high above sea-level on Gibbs Island,
South Shetlands

ALFRED SAUNDERS
F. I. B. P., F. R. P. S.

A Camera in ANTARCTICA

With seventy-two photographs
by the author

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CHAPTER I

SOUTH GEORGIA: SUMMER

THROUGHOUT my youth I had always had a great desire to go to the Antarctic. The books of Scott and Shackleton had fired my imagination and increased my urge to go South. Looking at the photographs in their books made me think how marvellous it would be to go as the official photographer on an Antarctic expedition. Little did I think that one day I would have the chance and when it did come I seized it with both hands. A *Discovery* Committee sponsored by the Falkland Islands Government had been formed, and was financed by a fund derived from a tax imposed on each barrel of whale-oil produced in the Falkland Islands Dependencies. The Committee was composed of members of the Ministry of Agriculture and Fisheries, the Admiralty, the British Museum and the Royal Geographical Society. Under its direction the *Discovery* Investigations came into being.

Scott's old ship the *Discovery* had been bought by the *Discovery* Committee and underwent extensive refit to carry out oceanographical research. In addition a small party was to be stationed on the island of South Georgia to carry out direct observations on whales killed there. Little or nothing was known of the breeding habits, length of life, rate of propagation, the food or the migration of whales. It was with the object of studying these and other related problems that a vast and comprehensive programme of research was planned and undertaken in South Polar seas. In northern waters, owing to excessive hunting, certain species of whales had become extinct, while others were reduced almost to the point of extinction. It was with a view to preserving the southern whales from a similar fate, and to maintain the stock of whales that the voyages to Antarctica were planned.

I joined the *Discovery* Investigations as a member of the scientific staff and was made a member of the shore party. Our home was to be established in Grytviken Harbour, where a whaling station operated and where Shackleton had died two years earlier on the *Quest*.

Towards the end of 1924 we made our way to the Falkland Islands, where we picked up a large ex-French trawler, the *Fleurus*, which plied between Port Stanley and South Georgia carrying mail and fresh meat to the whalers.

South Georgia is about 800 miles south-east of Port Stanley, and has the reputation of being surrounded by the most wild and stormy seas in the world. A gale was blowing when we left harbour, and the *Fleurus* rolled heavily. I was quickly seasick and remained so until we neared South Georgia and the weather improved.

The island was covered in fog and only at the water's edge could the alternating rocks and glaciers be seen. The seas around South Georgia were often

filled with icebergs, but when we arrived only a few grounded bergs were visible. A big gap in the land appeared, and into this we steamed with mountains towering above us. We passed a wrecked whale-catcher lying on the rocks and being battered by the swell. Out of the mist loomed a pile of stones surmounted by a wooden cross: it was Shackleton's Cairn, and we were in Grytviken.

Our house, which was called the Marine Station, was of wood and had been built already by Norwegians from the whaling station half a mile across the harbour. Here, under the blanket of fog, huge, gory carcasses showed up: they were whales being dismembered.

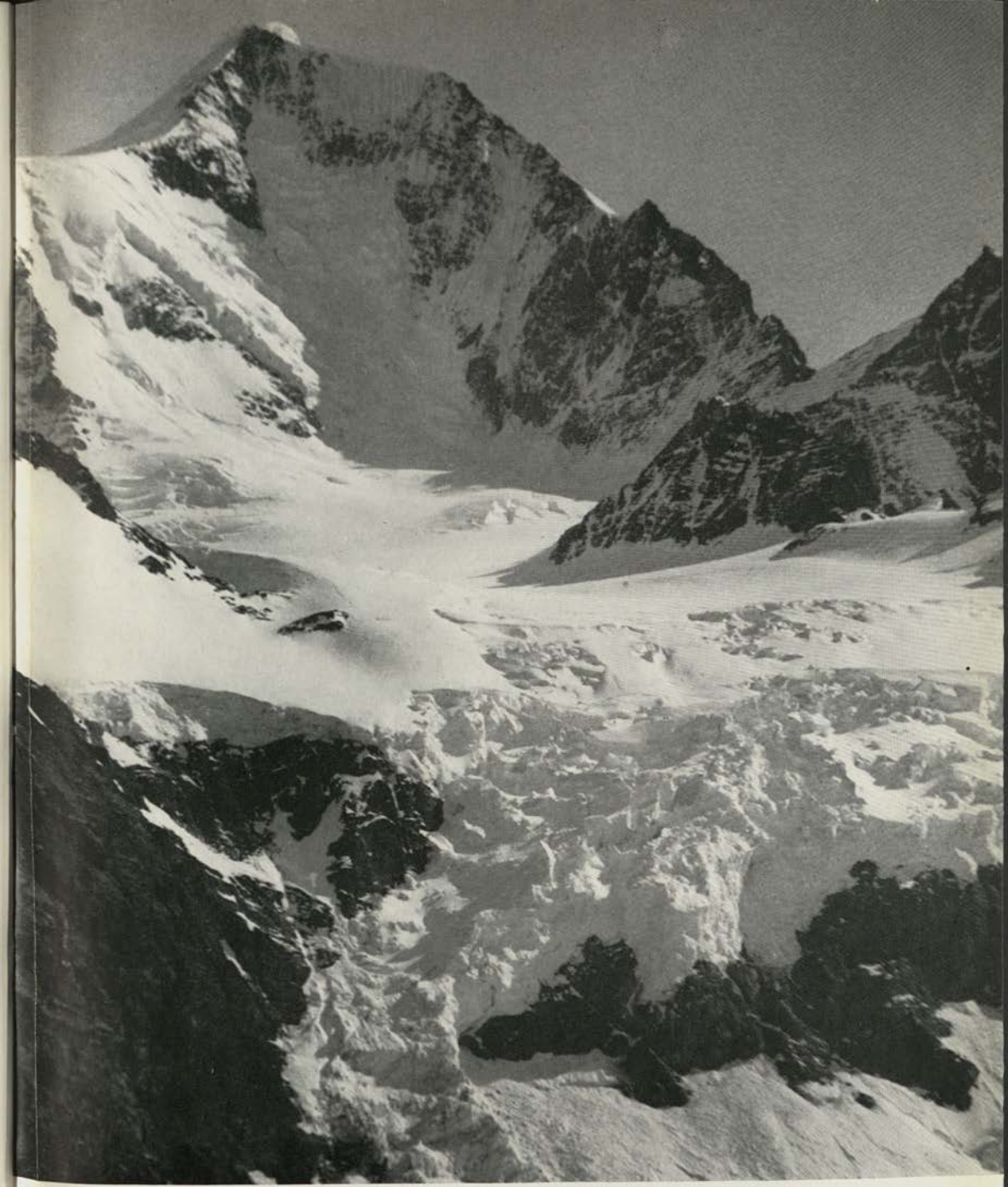
King Edward's Point on which our house stood had once been a big sea-elephant rookery and still smelled of its former inhabitants. Round about lay large iron pots, relics of the old American sealers who came periodically to hunt the 'elephants'. Putrefying carcasses and bones of whales lay on the beaches and a thick scum of evil-smelling grease covered them all. In the harbour thousands of Cape pigeons squawked and quarrelled noisily as they fed on the fragments of flesh and oil floating in the blood-stained sea-water. Dotted among them were delicate little brown and white Wilson's petrels dancing on the water, seagulls that spent more time in quarrelling than in feeding, and a few ugly Giant petrels, known locally as 'stinkers', greedily eating. When disturbed the latter were often too full to rise on the wing and could only do so after first vomiting violently to reduce their weight. On rare occasions a Wanderer albatross came into the harbour to feed.

A magistrate, two customs officers and a policeman were maintained on the Point by the Falkland Islands Government, South Georgia being one of its dependencies. They entertained us that first evening, and by midnight when we left them the fog had lifted and, as it was still light, our surroundings stood out bright and clear. Mountains seven and ten thousand feet high rose grandly to the sky; behind the whaling station several jagged peaks partly covered with snow and ice rose to nearly three thousand feet. From the whaling station steam and smoke belched forth, and the loud clanging of chains from a whale-catcher dropping its whales broke the silence.

Shackleton's Cairn stood on a small promontory a few hundred yards from our house. When we arrived it was gradually collapsing, and a few years later when it was rebuilt, a bottle containing a photograph of the crew of the *Quest* and autographed by them was found inside. It was carefully replaced. Across the harbour near the whaling station was a little cemetery, in which Shackleton lies buried. His grave was surrounded by a rough wooden fence, which was later replaced by a massive headstone. His companions were whalers of many nations who had died in the hazardous pursuit of whales.

At the Marine Station we were seven: five on the scientific staff, a cook and a steward. It took us a long time to get our stores unpacked and our house in order. One of my first tasks was to fit up a small dark-room from some of the empty packing cases. This was my first effort at carpentry, but I learned to do many jobs then foreign to me, such as haircutting, clothes washing and shoe mending.

Although we started work on the whaling 'plan', we did not get properly into our stride until the following season. Furthermore, the Norwegians eyed us



Sugar Top mountain, more than 7000 feet high, South Georgia

with distrust and often deliberately obstructed our work. Only Hansen, Benson and Fritz, the jovial flensers, welcomed us.

The 'plan' was a large rectangular open space, about 150 feet square, covered with thick wooden planks firmly fixed and sloping gently down to the water's edge. A gentle trickle of water was kept running over it to facilitate the hauling up of whales and the moving of the heavy strips of blubber and mounds of flesh. One edge faced the sea; the second side was bordered by a large tin shed that housed the boilers for rendering down the blubber into oil. Here, too, was a circular cutting machine for cutting the blubber into small strips which were then carried on a conveyor to the open boilers above. At the back of the plan were big winches carrying thick wire ropes for hauling up the whales. There was also a second raised plan for sawing up the enormous heads and jawbones and separating the segments of the tremendous backbones, which were then treated in steam pressure boilers to extract the oil. It was fascinating to see the giant head-bones, weighing many tons, slithering from side to side, and the colossal backbones undulating like monstrous reptiles as they were hauled up.

Sometimes a whaler missed his footing on the 'bone plan', as it was called, and came slithering down into the quagmire of blood, grease and flesh at the bottom. Such a happening was considered highly amusing and shouts of encouragement followed the unfortunate man as, thoroughly wet and plastered, he climbed slowly and with difficulty back to his job.

On the third side was another large tin shed enclosing pressure boilers for rendering down the flesh, which was cut up into chunks on the plan and then hauled in large steel buckets to a platform level with the boiler tops. It often happened that a heavily laden bucket overbalanced on the way up, and its contents came crashing down among the men working below, sending up a shower of filth which covered everyone nearby. But it was all in a day's work. The filth and the smell (at first well-nigh overpowering, but after a time, hardly noticeable) and the constant dangers of whipping and breaking wire ropes, were all taken for granted.

Sandwiched in the corner between the bone plan and the main plan was a shed where the residue of the boiled bones and flesh was dried and rendered into guano. Presiding over this domain was 'Lord Raspberry', a Norwegian so called because of his large nose which resembled this fruit and wobbled as he spoke. Blessed was that guano factory when the wind was in the right direction.

The outstanding characters on the plan were the flensers Hansen, Benson and Fritz. Hansen and Benson were always laughing and joking, while Fritz seldom laughed or spoke. Hansen and Benson were inseparables who had spent the greater part of their lives sailing before the mast. They both spoke English and my happiest times on the plan were spent joking with them as we worked side by side in sunshine, snow or sleet on these mammoths of the deep. They were skilful workers who made difficult jobs seem easy. They wielded their razor-sharp flensing knives much as a hockey player would his stick. Navy rum was a weakness of theirs which we at times endeavoured to whet, but could never satisfy. Late one afternoon two or three years later, they had paid me a visit at the Marine Station, and during their short stay disposed of a bottle of

Above: Grytviken Harbour, showing Mount Duse and King Edward's Point
Below: The whaling station, Grytviken Harbour, at the end of the whaling season

whisky between them, scorning the use of water. It was a convivial interlude, and, the bottle emptied, they thought it was time to go. Hansen walked a little unsteadily into the open air, but Benson's legs failed him. It was then dark and to Hansen and me fell the difficult task of carrying the heavy, helpless but happy Benson home. Over the slippery rocks and round the beach back to the whaling station we went, and put him into his bunk. It was the last I saw of Benson. A day or two later he died after a short and sudden illness.

Another prominent personality was the head foreman and engineer, Ovesen. Red, round and hairy, always helpful, always cheerful, he was liked and respected by everyone. Then there was Larsen, the old knife-grinder, whose job it was to keep the flensing knives constantly sharp. He sharpened ours too, and was suitably rewarded with an occasional tot of rum for which he developed a strong liking. When he felt a tot was due, he would complain to me that he was developing a cold and was unable to keep our knives sharp. The tot proved a remarkable cure. His behaviour was always somewhat odd so that I was not surprised when some years later I learned that he had slid farther down the scale of sanity, and had gone to the station manager and asked him for a new piece of rope, as he wanted to hang himself and the piece he had was too rotten.

When the day's work was done, the whalers spent their leisure playing cards in their huts, or in a game of football on a patch of fairly flat ground at the back of the station, or in washing clothes. The conversation at all times drifted to whales; it was the all-pervading topic.

Whaling at this time was a most profitable business, providing good dividends for the shareholders and good wages for the whalers. The latter, in their ignorance, imagined that the sole object of our investigations was to stop whaling. On the plan, many of them openly showed their resentment. When one of us was in a precarious position and just about to extricate a foetus or organ from among the masses of bulging intestines and mounds of slippery flesh, he would see it lost when a winchman heaved without warning on a wire rope attached to a huge section of a whale's carcass, which he pulled until it was right over the wanted object. Many times, too, having extricated with some difficulty an organ and placed it for later examination and measurement in what was thought to be a safe spot, we would turn round to find it being whisked away by an aggressive whaler. Or, when stepping warily across a slimy mass of flesh or strips of blubber, we would be suddenly sent sprawling by someone deliberately heaving on it. To complete our discomfiture the whalers would all roar with laughter at us. Best of all was when we were so unfortunate as to get covered with the contents of a distended stomach or intestine. Then they nearly died of apoplexy.

In our ignorance of Norwegian, we had no redress and just had to grin and bear it. I mixed among the workmen as much as possible and to those who spoke English I tried to correct the impression they had of our work. It was a slow, uphill job, but in later years, especially when I had learned to speak Norwegian, their attitude changed and they would go out of their way to help us.

Whalers were rough diamonds—very rough, but diamonds nevertheless. I learned to like and to admire them and loved to listen to their yarns of the sea,

of whaling and of Norway. I felt rather overawed by these burly fellows at first, but later when I was able to join in their jokes they acclaimed me as one of their own: a great compliment. In spite of their rough appearance they were kindly and polite and it was refreshing to see the manner in which they swept off their caps whenever the manager or station foreman passed. Theirs was a hard life, with long hours of work in all weathers, poor food and only tin-roofed huts lined with wooden bunks to live in.

By the end of the whaling season, which usually lasted from five to seven months—that is anything from September to May—they were ready to go 'on the bust'. Arriving home with pockets filled with hard-earned money, they were the prey of crooks who converged upon them from all parts of Europe. I have heard many tales of the earnings of two or more years going in a night. I was told of one whaler who, paid off in Liverpool with £500, got hopelessly drunk, then spent the rest of the day giving away five-pound notes. Next morning he had not a penny to get him back to Norway. Some whalers never got farther than Buenos Aires where, in a few weeks of riotous living, the earnings of two or three years were disposed of. They would then borrow money and live in poverty until they could go whaling again. Few whalers were provident and only such people as managers, gunners and whaling captains could retire. Most others hung on pathetically to any job they could get.

In the old days, when a whaling ship paid off in Liverpool, I was told, the police would conduct the whalers to the railway station where, *en route* for Norway, they were locked in carriages on the sides of which were chalked the words 'Wild Whalers'. Things are different now.

At South Georgia we were soon introduced to whale meat which looks rather like beef, but has to be well fried with onions to taste its best. This and other hints, such as cutting it across the grain to avoid spending the rest of the day picking threads from one's teeth, had to be learned if one was to enjoy the meat. Otherwise our food was entirely tinned, except for some barrels of salt pork and salt beef which, judged by their appearance and the efforts of mastication needed to dispose of them, we swore dated from the time of Nelson.

Penguin eggs provided a welcome addition to our diet during the early summer months. These we got mainly from the whale-catchers which, when unable to hunt whales owing to stormy seas, would visit the penguin rookeries. Penguin eggs are not pleasant to look upon, the 'white' being anything but white, and very glutinous, while the yolk ranges in colour from yellow to blood red. They were delicious when fried on both sides, but rather oily.

On Sunday afternoons when work on the whaling plan was finished, we used either to go for walks, climb mountains, go for long boat journeys, or just fish. At times there were plenty of fish in Grytviken which could easily be caught without bait. One fish which was not popular was the crocodile fish. It had an enormous gaping mouth much larger than the rest of its body, the whole of which was covered with slime. A good place for fishing was in a patch of kelp which grew just off the beach near our house. The kelp was also helpful in the event of a sudden squall for one could hang on to it and escape being blown out to sea.

Shackleton's Cairn, Grytviken Harbour. The great explorer lies buried in a cemetery near the whaling station

Walks round the beach were popular but arduous, for it was littered with piles of whale bones all covered with the slimy *graks* upon which we slipped and fell. Some distance beyond the cemetery was a sea-elephant rookery. A visit to it provided us with exercise and a change of smells.

One Sunday afternoon a party of us set out in a dinghy to row to Nordenskjöld Glacier, the largest in South Georgia, about seven miles away. When we turned into the fjord at the far end of which lay the glacier, we found a heavy swell coming in from the sea and thundering on the steep, pebbly beach. Riding on a big wave we rowed for all we were worth, crashed on the beach, and tried to jump ashore. Some succeeded, but we in the stern were caught by the next wave and in a moment were struggling in the ice-cold water. We managed to get ashore and helped to hang on to the painter to save the dinghy from being smashed by the swell or carried away by the backwash. We expected every moment to see the dinghy crushed by a wave or by the huge chunks of ice lining the beach. Eventually we got the boat ashore, and built a big fire of driftwood. We undressed and, standing in our birthday suits, dried our clothes as best we could.

Some years later a party of us were cruising along the face of Nordenskjöld at a distance of about thirty yards. It was a lovely day with the ice lit by brilliant sunshine. We had a motor-boat with a dinghy in tow, and were enjoying the awe-inspiring spectacle of the deeply crevassed glacier-face towering above us to a height of about three hundred feet. Suddenly we were alarmed by the loud report of ice cracking alongside us. The next moment several tons of ice broke and crashed down the glacier-face into the water with a loud roar. Hurriedly we managed to turn the boat just in time to meet the first huge wave. Up we went and down the other side to meet another, and another . . . A few moments later we came to rest with large masses of ice all round us. Both boats were safe, but it was amazing that we missed being smashed by the huge lumps of ice which bobbed up to the surface with tremendous force.

The weather during our first summer was remarkably fine, and in the sunshine the mountains in their perpetual cloak of ice and snow were a wonderful sight. The next summer we had many gales, some of which lasted ten days. These gales broke with tremendous suddenness. The wind roared down the mountains and in a few moments the harbour was a cauldron of seething water. The fiercest though shortest-lived gales came from the south west.

We spoke only of two seasons in the Antarctic. There was no slow transition from one to the other; it was either winter or summer. At South Georgia we reckoned on summer being from October to May, and winter from June to September. Farther south the proportion of winter to summer was equal, with six months of continuous daylight and six weary months of darkness. At first we found the long hours of daylight upset our sleep, for we felt a reluctance to go to bed; while the darkness of winter depressed us. Some years the snow of one winter had not disappeared before the next winter's fall began.

Late in 1925 the *Discovery* arrived from England. One afternoon she was lying at anchor in the bay, and I was high up the mountainside by the whaling station. Without warning a south-wester came roaring upon us. From my

precarious position, hanging on and gasping for breath, I saw the *Discovery* hurriedly let go her second anchor, but in spite of this and with her engines going full ahead, I watched her being steadily blown ashore. These south-westers were terrific. Boats broke their moorings, others were overturned. The sea was lashed white and through the water-laden air large masses of sheet iron twisted and turned like pieces of paper. Grytviken was fairly well protected, but at other whaling stations on South Georgia, houses had to be held down with wire ropes.

Almost every night the sea in the harbour froze, but by midday the winds had broken up the ice and blown it out to sea. At sunrise the scene was wonderful. First Mount Paget, 10,000 feet high, then Sugar Top, 7000 feet high would change from a dull grey to a delicate rose pink and then to a brilliant golden white which gradually crept down the mountainside. The reflections on the sea strewn with drifting ice produced a sight of exquisite beauty.

At Grytviken a church had been built with money provided, I believe, by two old Norwegian ladies whose generosity exceeded their knowledge of the 'spiritual' needs of the whalers, which could best be attended by a barman. At the time of our arrival the church was in disuse. Later it became a potato store and then a cinema, into which the whalers flocked every Sunday evening to laugh uproariously at films about ten to fifteen years old.

Writing of the spiritual needs of whalers reminds me of their ability to consume alcohol. Their requests for alcohol were persistent to the point of annoyance, and to them a bottle of whisky was worth five pounds. I am afraid this outrageously fictitious value was often exploited by the unscrupulous. Whisky was the favourite drink. It was taken undiluted, and it was a point of honour that anyone invited to take a drink, did not leave until the bottle (or bottles) was empty. An old sailing ship called the *Tijuca* brought stores twice a year to the whaling station from Buenos Aires. It was surprising how much alcohol was smuggled ashore from this boat and how little was found by the customs officers. The arrival of the ship always heralded general drunkenness among the whalers and a complete dislocation of work.

I remember that two whalers were absent from work for four days on end. During that time they had neither eaten nor been seen. The door of their room was then forced by the foreman, and they were found helpless in their bunks. On the floor were strewn twenty empty one-litre bottles of absolute alcohol. Every time they had awoken from their stupor, they had drunk themselves asleep again until the last bottle was empty.

The seas around South Georgia were notoriously stormy and took their toll among the whale-catchers. Several were lost during my seven years among them.

I remember an unusually heavy easterly storm which hit the island and lasted several days. All the catchers hurried to the nearest harbour for shelter. One anchored in a rather exposed harbour near Grytviken where it was battered by the ever-increasing violence of the storm. Wireless messages were received from her saying that she was being driven on to the rocks and that waves were breaking right over her. The operator kept up a running commentary saying they would soon be smashed, and that some of the crew had flung themselves

Nordenskjöld Glacier, the largest glacier in South Georgia

into the roaring sea in a last hope of getting ashore, but had either been drowned or crushed on the rocks. A catcher bravely went out from Grytviken to help them, but the storm was so fierce and the sea so rough that she was unable to do more than stay in the vicinity until the end.

From the doomed catcher came a message saying that all but three of the crew were dead, the boat was being pounded on the rocks and the survivors were struggling in water. The end was not far off. They asked to be remembered to their families. Then—silence.

On another occasion a catcher belonging to a factory ship, sprang a leak below the water-line. She made for the shelter of some sea-ice, and the crew weighted the boat so that she listed heavily, and so brought the damaged surface to view—a rather risky thing to do in open water. While the crew was working on the repairs, the boat suddenly capsized. Searching a day or two later, another catcher found the survivors on an ice-floe. Three were alive, but mad—the others were frozen. On their hands were skins of penguins—they had killed penguins for food and used the skins as gloves.

The whalers were very keen footballers and there was great rivalry between the five whaling stations on South Georgia. Matches were often played in a gale or a blizzard. An annual sports meeting was arranged, at which prizes specially brought from Norway were presented. When the meetings were held at Grytviken, the prizes were usually presented in the church and were followed by a cinema show or concert. With the growth of pelagic whaling and the decrease in the number of whales around South Georgia, three of the land stations closed down, and the rivalry ceased.

The scramble for quicker and bigger profits changed the character of whale hunting. The importance of the land stations declined when whales were hunted along the ice-edge where they were much more abundant. But large numbers of factory ships came to Grytviken for water, where it was crystal clear. The factory ships ranged from well equipped vessels to old crocks, with sides built up of wood and with boilers fitted on deck. There was a terrific wastage of whales in these old ships, for often only the blubber and tongue were used, and the carcass was thrown away. The old crocks no longer exist, and only large, well equipped factory ships capable of taking one or more whales on their decks at once now operate, and there is very little wastage.

With the coming of May the change from summer to winter was rapid. Gales became more frequent and lasted longer, temperatures dropped and snow began to lie thickly. Whales became scarce, then disappeared, and the whale-catchers returned to harbour, sending up a farewell spume of white spray. The whaling stations closed down and transport boats loaded with Norwegians and oil returned to Norway. After they had departed, Grytviken seemed strangely quiet and still.

CHAPTER II

SOUTH GEORGIA: WINTER

WITH the departure of the whalers, life settled down to a slower, quieter tempo. At the whaling station a small maintenance party was left behind to look after the buildings and machinery, and to overhaul the catchers.

It was generally agreed that in spite of the weather, winter was the best time of the year. The weather was rather more settled, but gales and blizzards reached terrific force and lasted for days on end. To go out in a blizzard was to run the risk of being lost in the blanket of snow, fine as sand and sweeping through the air parallel to the earth. Bending almost double, struggling against a wind that sometimes reached a force of a hundred miles an hour, gasping for breath and blinded by the snow that stung the face like a sand blast and pierced every chink in the clothing, one often stumbled and fell. When going with the wind, one had to lean back on it or be blown over. To walk to the whaling station in bad weather was an achievement and in darkness a nightmare.

All travelling had to be done on skis. We practised on the slopes at Shackleton's Cairn, finding it awkward at first, but later becoming proficient we travelled long distances over the mountains in an afternoon.

Setting off alone one afternoon with my camera, I went to Maiviken Harbour, about five miles from our house, to try to get photographs of sea-leopards. I was very much a novice on skis at that time, and my skis were old and ill-fitting. It was a long struggle over the hills in the deep, soft snow, in which I often fell, and I arrived at Maiviken feeling very tired. On the beach I found a solitary sea-leopard sleeping, photographed it and started back.

The soft snow made hill climbing difficult, and I frequently had to stop and rest. I took off my skis, but sunk in the snow up to my arm-pits. I climbed a hill which I thought would be a shorter way back, but when, almost exhausted, I got to the top, I found there was no way down the other side. Disappointed and very weak, I retraced my steps. Picking up my old tracks I put on my skis again and hurried as best I could into the growing darkness.

My rests became more frequent. Often I stumbled and fell, taking longer and longer to regain my feet. By the time I reached the top of the ridge half way between Maiviken and Grytviken I was half frozen and completely exhausted. My mitts were a mass of ice and my boots were frozen solid to my skis. I lay down in the snow without attempting to remove them and had an overpowering desire to sleep. I felt that if only I could sleep for just a minute I would be all right, but I fought against the desire knowing that if I gave in I would never wake.

After a few minutes I struggled to my feet and set off down the hill, going wherever my skis took me. I could not see where I was going, as it was

A grounded iceberg off South Georgia

now dark. Every few yards I fell. Staggering and stumbling, hardly knowing what I was doing, I battled on and at last reached the top of the hill overlooking the whaling station. Below I saw the lights in the huts. I scrambled down the hill and staggered into the manager's house. In the kitchen the Norwegian cook gave me hot coffee and by a blazing fire I gradually thawed.

The second of these adventures was when I was trying to get photographs of Sugar Top and the harbour from the mountain slopes behind the whaling station. A layer of ice covered the snow, and since my skis were useless on the slippery surface, I took them off. Rounding an ice shoulder to reach a better vantage point, my feet suddenly shot from under me and a moment later I was on my stomach describing catherine wheels on the icy slope that ended in a drop of two or three hundred feet. Helpless and unable to stop myself I thought this was the end. Suddenly my downward flight stopped. Feeling rather shaken, it was some minutes before I dared move. I found myself on the brink of the precipice in a patch of powdery drift snow. It was this that had saved me. I started to crawl on my stomach up the slope, gripping as well as I could on the hard ice with my fingers and toes. When I was half way up, my smooth boots failed to grip on the ice and I slipped rapidly back. Once more the patch of drift snow stopped me.

An icy wind began to blow down the mountainside, cutting through my clothes and sending a rain of ice particles which stung my face and hands. Visions of having to spend the night in this difficult position, and of my ultimate fate spurred me on. Lying on my stomach I cautiously kicked steps in the ice and slowly made my way up that bitterly cold slope. There was nothing I could grip with my hands, and my toes suffered badly. At last I reached safety, and made my way back to the Marine Station where, on taking off my boots, I found my toes all torn and bleeding. It was some time before I could use skis again.

On the Point we periodically forgathered for a convivial evening. After one such evening Talbot the policeman, an ex-naval man with a liking for rum, left us to return to the 'Quarters'. The snow lay thick outside, but apart from being bitterly cold, the night was fine. Talbot reached the door of the 'Quarters' all right, but got himself no farther and he lay down in the snow and slept there till morning. Why he was not frozen to death we could not understand. A week in bed was necessary, however, before he was quite fit again.

Talbot was a good-hearted, generous fellow, and was not a policeman in the ordinary sense for he never wore uniform and never did patrol. His main duties were to hoist and lower the Union Jack at sunrise and sunset, and to drive the magistrate's motor-boat. His presence was more symbolic than necessary. On occasion he would entertain us in inimitable style with a song about a certain young lady named 'Ray-chol Le-vin-skee', who promised to be his wife and whom he promised to love, honour and obey. When his three years' service was completed he left South Georgia for good.

The 'Quarters' was a wooden house built for the accommodation of the magistrate, the customs officers and the policeman. The rooms were simply furnished, with the addition of an odd armchair or two of ancient vintage, and a big closed stove to help keep out the cold.

The Marine Station was more modern and more solidly built. Apart from the cook and steward who shared a room, we each had our own rooms. Our electric light was supplied from the generator of a wireless station built at the same time as our house and manned by two Falkland Islanders. We had a well equipped laboratory, a workshop and a kitchen. Our furniture was good and comfortable, and during the long, monotonous winter evenings I would sit in my room reading or writing when not wandering about the house looking for something to do.

Snow fell almost every day, often heavily and sometimes as much as three feet in a night. When this happened we had to climb on to the roof of the Marine Station and remove the snow and the threat of the roof caving in. As the Point was fairly exposed snow did not lie so readily there, and the average depth was about five to six feet, although some drifts were twice that depth. On the steep slopes leading to the whaling station the snow was about twenty feet deep and ended in an abrupt drop to the sea. These slopes were always difficult to negotiate, and to the danger of going over the edge into the icy water was added the constant threat of avalanches. An avalanche at one of the other whaling stations one winter killed five Norwegians and did much damage.

On moonlight nights, when it was calm and clear, it was gloriously beautiful. Then the ice-clad mountains towering round us appeared less fearsome and became softened in the pale light. Across the harbour the black whaling station with its twinkling lights stood out against the white background of snow. The great silence was broken only by the crunching of boots on the hard snow or the swish of one's skis. Occasionally from across the water the roar of a disturbed bull sea-elephant or the barking of a sea-elephant pup would come to us loud and clear. At intervals the deep rumble of avalanches of ice in the mountains filled the air. To ski on such nights was most exhilarating, though once out of the direct moonlight the shadows were heavy, and violent falls in the snow shook one's whole body.

At other times the wind would howl with fury. Driven off the mountains, clouds of powdery snow swirled and milled around the house, which shook with the force of the wind. Peering through the windows one caught glimpses of seagulls facing the wind with heads bowed, half buried in the snow. In the morning they would be dead. Of the countless thousands of seagulls and Cape pigeons in the harbour, those that did not migrate with the coming of winter died in their hundreds of starvation and cold. All round the house their stiff bodies protruded from the snow. Hunger made the birds very tame, for whereas in summer they flew away as soon as one approached, in winter they gathered round the house, flew to an open window and took food from the hand.

When the wind came from the east, it usually brought glacier ice with it which filled the harbour. One or two sea-leopards could usually be seen sleeping on the ice. Armed with a gun and camera, we would get into our dinghy and push through the ice towards them. When the ice was thick and heavy we had to get out and heave the boat over it. Having approached the leopard as quietly as possible, a shot in the nape of the neck would kill it. With the leopard attached tail first to the stern of the boat we would tow it through the ice slowly back

to the beach, where we would immediately be surrounded by crowds of hungry seagulls squawking loudly. The skin was stripped off and laid on the snow so that birds could eat the blubber. The heart, liver, tongue and brains were removed for our larder and the carcass was left to the hungry birds.

It was not always as simple as that, for often the ice was too heavy and closely packed to get the dinghy through. Sometimes the sea-leopards made off at our approach. Once the steward and I struggled through the thick ice, heaving up and down on a heavy swell, and in the face of a stinging wind which cut through our clothes and froze us to the bone. The wind and swell were gradually driving us on to some rocks over which the swell was sweeping with a tremendous roar. It was decidedly unpleasant, and we were not really sorry when we saw the leopard slide off the ice into the water and disappear. We had considerable difficulty in getting the boat back through the heaving ice and could not have done so had we had a sea-leopard in tow. On occasions when it was difficult to use the gun from the boat, I would jump in my stockinged feet, so as not to slip on the ice, on to the floe on which the sea-leopard was resting, and shoot it at close range.

The sea-leopard grows to a length of twelve feet and is very agile, particularly in the water. As he is aggressive, one has to treat him with respect. His name is presumably derived from the spots which stretch from head to tail on the underside of the body. The sea-leopard has a snake-like appearance and method of propulsion, is ferocious in his habits, and has been known to attack men in a boat. I felt no great love for him. At sea he is the penguins' greatest enemy, constantly preying on them and killing them for food. On catching a penguin a sea-leopard grips it in his mouth and shakes it until the skin is removed. This is then discarded and the carcass eaten. As many as eighteen penguin carcasses have been found in the stomach of a sea-leopard.

One day at the Marine Station while watching a number of Stinkers feeding in the kelp by the beach I saw one suddenly grabbed from underneath by a sea-leopard and shaken vigorously; in a matter of seconds it was no more. The sea-leopard also feeds on fish. The skins of those leopards we killed for food were scraped and dried; they were then used as mats or cut into strips to make belts.

Our diet of tinned food (which had not reached the present-day standard of excellence), became monotonous and unappetizing, so that the fresh sea-leopard meat was greatly relished, especially the liver when fried with bacon. No opportunity to replenish our stock was neglected and those beasts which hauled out on the beach near our house invariably found their way into our larder. Sometimes a sea-elephant would haul out on the beach. We killed one for food, but found its flesh more stringy and coarse than that of the sea-leopard.

Icebergs regularly drifted into the harbour. One remained four months before drifting out to sea again. We used to row to them in the dinghy to get photographs. One afternoon four of us pushed through the ice to reach a berg about 150 feet high. When we got to it we found a mass of smooth ice jutting from one side. I removed my sea boots, climbed on to it, in my stockinged feet, and was amazed to find what looked like a huge cauldron of boiling water in the centre

of the berg. Every few minutes the water was sucked noisily down what proved to be a funnel-shaped hole and then rose, boiling and roaring, lashing the sides with fury to within a foot of where I was standing. The hole had been worn in the berg by sea erosion.

One afternoon we were ski-ing on the slopes by Shackleton's Cairn. It was a lovely day of brilliant sunshine. The mountains and an iceberg in the harbour were dazzlingly white. Suddenly the iceberg, which had been with us for some time, broke. We had been expecting it for some days, as a crack had appeared in it, and had gradually widened. There was a deep roar and a cloud of flying ice. A moment or two later there was a louder roar, and large lumps of ice crumbled and fell into the sea, sending a cloud of spray and powdery ice high into the air. I saw the berg roll and the sea around it boil. Yet another roar, and more ice fell into the water. A huge wave swept in and landed on the beach. We saw the berg heel over and huge masses of blue ice rose, as if by magic, out of the sea. Then with a few lesser heavings, the berg came to rest, the sea became calm, and the crumbled ice lay thickly strewn around.

Ski-ing was usually warm work; perspiration poured down our faces and our underclothes became wet through. As soon as we stopped to rest the perspiration turned to ice—particularly down the spine, where it was decidedly uncomfortable. My beard, eyebrows and eyelashes also became thick with ice. This alternate over-heating and freezing left its mark on me. At one time all the joints in my body went dry and every movement I made caused my bones to click. When I bent my back my spine would go click—click—click. It was most depressing to live under these conditions with so much time to think of one's aches and pains which tended to become magnified. During one winter I used to imagine all sorts of illnesses at the first twinge of any pain, and was fast becoming a hypochondriac when one day Fraser, who at the time was in charge of the Marine Station, gave me such a spate of unprintable opinion on my aches and pains that I determined I would rather die than mention them again. I did not like the medicine, but it did me good, and pulled me up in time.

Fraser was a fine fellow whom one could not fail to like and respect. He was a Scotsman and a zoologist, and was quiet, unassuming and kind. He was a hard worker, a good leader and a fine friend. Working with him at all times, whether on the plan or heaving coke, was a pleasure. I was always sorry when he left the Marine Station for long periods to work on the *Discovery II*. One night during the winter he jumped, for a wager, naked into the soft snow outside the house. This amused us immensely, but the shock to him must have been terrific.

With incidents such as this, we endeavoured to relieve the tedium and monotony of winter. We had our scientific work, of course, and worked long hours in the laboratory, but we still had a lot of time on our hands.

One of our principal jobs was to analyse and tabulate all the data on whales collected during the previous season's work on the plan. We drew graphs to show the monthly catch of whales and the size of the whales as compared with the number caught.

The numerous external and internal parasites of the whales were examined. In the intestines masses of tape worms, some thirty feet long, were found, while in

Mountains of South Georgia. In the background, extreme left, the peak of Mount Paget, more than 10,000 feet high

the main arteries near the heart, large bundles of round worms embedded in the artery wall were sometimes encountered. These large masses of parasites waving in the blood stream would sap the whale's strength.

Specimens of food were collected, identified and measured, and with few exceptions were found to belong to one species of shrimp.

We also added to our activities by examining fish, birds and seals caught in the harbour.

One daily task was to collect a sample of sea-water at high tide at Shackleton's Cairn for chemical analysis. It was a welcome diversion, but could be very unpleasant in darkness and stormy weather.

I remember setting out on skis early one morning after there had been a heavy fall of snow during the night. The snow was very soft and ended abruptly at the water's edge. On arrival at the cairn, I lowered the leather bucket over the edge of the snow, which was about six feet deep, to fill it as the swell came pounding on the rocks and shingle below. Suddenly the snow gave way under me and I fell with bucket, bottles and thermometer on the beach. My skis got stuck in the snow so that I lay with my feet in the air and my head and shoulders on the beach. Fortunately the tide was not so high as usual and the swell had rolled out at the moment I fell so that I landed on a narrow and fairly dry strip of beach. I quickly extricated my skis, rolled over on my side, and regained my feet just as the swell returned and swamped me with freezing sea-water. It was fortunate I had been able to get my skis out quickly.

The evenings were monotonous and were spent quietly. Reading was the favourite pastime. I worked in the dark-room as often as I could and always got a thrill out of producing a new photograph. I carried my camera whenever the possibility of a photograph seemed likely, although weather conditions were usually against me. In my diary I have this entry:

Monday, 9th July, 1928:

Last night it blew like fury and when the moon rose it looked terrifying outside. The wind was howling, the sea rough, and the moon shining through heavy black clouds lit up the swirling snow and made everything look most ghostly.

On such nights, bed was very comforting.

The great event of the winter was the ski race organized by the Norwegians left at Grytviken for maintenance. Everyone who could was expected to enter the race, which was usually about twelve miles over a mountainous course.

In early September we began to look forward keenly to the return of the whalers. New catchers covered from stem to stern with frozen spray began to arrive. Seal catchers steamed out of harbour and began their hunt for sea-elephants. Finally the whalers arrived in Grytviken on the transport boat *Harpon* with our long and eagerly awaited mail and provisions. Boats were repaired and put into the water.

A week or ten days later the first whale of the season was brought in. Its arrival marked the end of our winter routine and our mornings in bed. But we were glad to be busy again.

CHAPTER III

WHALING

After the collapse of the whaling industry in northern waters, a Norwegian sea captain named Larsen went to the Antarctic at the beginning of the present century to investigate the reports of the large numbers of whales seen there. As a result of his visit he tried to float a whaling company in Norway, but met with no success. Nor did he fare any better when he tried in England. So he went to the Argentine to gain support for his project and the first whaling station was built in Grytviken Harbour in 1904. Later four other stations were established by Norwegian and British companies—Prince Olaf, Husvik, Strömness and Leith.

In those early days the seas around South Georgia and in the Antarctic generally were teeming with whales. Mighty Blue and Fin, and the smaller but more intelligent Humpback whales could be seen blowing everywhere. In Cumberland Bay, of which Grytviken formed a small part, Humpbacks were found in plenty.

Since the whale-catchers at that time were too small and slow and their equipment was completely inadequate to deal with the larger and faster-moving Blue and Fin whales, only the Humpback was hunted. They were caught without difficulty and without regard to the number that could be handled by the men at the station. This resulted in colossal waste. Through the inability to cope with them large numbers of whales were allowed to rot and had to be towed out of the harbour to make room for others more freshly killed. Little more than the blubber and tongue were used. The rest of the carcass was allowed to drift away to pollute the beaches and provide food for myriads of birds.

Later on, when Humpbacks became scarce (it was said by the whalers that the Humpback, if continually hunted in its favourite haunts, left them and never returned), bigger and faster boats and more powerful harpoon guns enabled the whalers to turn their attention to the great Blues and Fins. At the time of our arrival in January 1925, methods and equipment for the killing and disposal of whales had greatly improved, although there was still considerable waste. Today the regulations are very stringent and methods so improved that no part of the whale is wasted.

The Blue whale gets its name from the colour of its skin which is a mottled blue. The tongue, roof of the mouth and baleen plates are dark blue. The colossal head is flat, and there are a few solitary hairs growing on it. At each side of the head is an eye and three or four feet behind is a small cavity which is the ear, and which is too small for a pencil to be inserted. A little to the front of the eyes and in the middle of the head is the blow hole which operates like a valve,

A Blue whale in its death throes. The gunner of the whale-catcher *Morsa* has fired two harpoons and is about to fire a third

opening to let the air out and closing to stop water entering. The Blue whale is the largest animal in the world and grows to a length of one hundred feet.

The Fin whale, which is the next largest in size, is grey on the upper surface of its body and white on the lower. The roof of its mouth and most of its baleen plates are also white, the remainder being grey. The head is flat, but more pointed at the tip than that of the Blue whale. It grows to a length of eighty feet. Both Blue and Fin whales are beautifully streamlined.

The Humpback is neither so well streamlined nor so beautiful as the Blue and Fin. It is rounder and more cumbersome and has large, unwieldy flippers. It is a darker grey than the Fin and has odd white splashes mostly on its lower surface. Barnacles and other parasites are abundant on its head and flippers. Its baleen plates are much longer than those of the Blue and Fin. It grows to a length of about forty-five feet.

The Sperm whale, with its enormous round head with a large, flat, blunted surface at its tip and comparatively small but tremendously powerful jaws, is nearly as unlovely as the Humpback. Its saving grace is its rapidly tapering body ending in tail flukes. It is a tremendously powerful animal and one can imagine the titanic death struggle which takes place below the surface of the sea between a Sperm whale and a giant squid, with the whale emerging victor. This whale is dark grey in colour with sometimes a light patch on its lower surface. Unlike most other species of whale, the male is larger than the female and grows to a length of sixty feet.

As soon as the *Harpon*—a transport of 8000 tons belonging to the whaling company operating at Grytviken—arrived from Norway and tied up at the jetty, the whalers would begin to leave the ship to take up their quarters ashore. With their sea-chests which contained their best clothes, parting gifts from their families and a bottle or two stowed carefully away for special occasions they struggled over the snow towards their huts. Frequently they would stop to shake hands with friends who had remained during the winter.

Letters, and parcels from which one would usually hear the muffled clink of bottles sent from friends at home, would be handed over. Small groups would gather to seek comfort and forgetfulness of sad partings with the aid of a bottle, and become fuddled. But this did not matter as there was no work on the first day ashore. Next morning a party of men would start to clear the plan of its solid wall of snow six to eight feet deep. Others would dig trenches in the snow to the store-sheds and workshops. The gunners and their crews would take possession of the newly painted and overhauled catchers. The station would be alive once more.

A few days later the catchers steamed slowly round the harbour adjusting compasses. Final touches to the harpoon guns were added and their accuracy tested on boxes thrown over the side. Next they took on fuel-oil, provisions, whale-lines and harpoons and waited patiently for the whaling to begin.

Then, deftly dodging large lumps of drifting ice they steamed swiftly and proudly out of harbour, followed by the eager and expectant eyes of their comrades ashore who wished them *God fangst* ('Good hunting'). Upon their luck and skill the fortunes of all depended.

Days passed by and no boat returned. Over the wireless telephones reports came of 'Bad weather, no whales'. At last the masts and funnel of a catcher appeared above the hillock on which stood Shackleton's Cairn. Then, as she came into full view we could see that she was towing a whale, and we could judge by her speed whether or not it was a big one. At the beginning of the season Blue whales were usually caught.

Hurriedly we changed into our overalls and, if the harbour was free from ice, rowed over to the station. Otherwise we hurried round the beach through the snow, and arrived just as the whale was being hauled on to the plan. Laughing and joking as usual, Hansen, Benson and Fritz, the flensers, were standing by sharpening their flensing knives. Then the station's butcher arrived and as soon as the first strip of blubber had been peeled off he pounced on the whale and cut from the fleshy part of the back huge rectangular chunks of meat, each weighing from twenty to thirty pounds. When he had finished there was a deep trough in the side of the whale. With the whale turned over on its other side he again attacked the mountain of flesh. We too joined in the onslaught and triumphantly carried off for our larder huge chunks of dripping flesh, which felt pleasantly warm in the bitter cold.

Our task was to measure all whales brought in—their total length, and many exterior and internal dimensions—to note their species, sex, colour, shape and other peculiarities, their external and internal parasites (of which they had many), and to examine stomach contents. It was filthy work, wading about in grease, blood and excreta, but I found it extremely interesting and I enjoyed it immensely.

We tried to be on the plan whenever whales were being flensed and dismembered. During the seven seasons the Marine Station operated we rarely missed a whale and, when we did, it was usually through unavoidable circumstances. I must have helped in the examination of over five thousand whales.

The whales caught at South Georgia were mostly Blue and Fin, although on odd occasions a few Humpback, Sperm and Sei whales and, on very rare occasions, a Southern Right whale, were brought in. The largest whale I saw was a colossal female, ninety-five feet long. As it lay on its side on the plan it towered above me to a height of twelve feet. Its severed head measured over twenty-five feet. Once we measured the girth of a Blue and found it to be over thirty-five feet. It has been estimated by Norwegians that a large Blue whale weighs as much as thirty or forty large elephants. It is amazing to think that these enormous animals, whose tremendous size it is difficult to visualize, should feed on shrimps.

We used to look carefully for foetuses, and during the years we were at South Georgia we found many. Some were less than an inch long, others measured nearly twenty-five feet, and were just about to be born. Even on the slippery plan, it would sometimes take six men to drag these large foetuses away. Occasionally we found twins, while from another whaling station came a report of five being found in one whale. Like other mammals, whales suckle their young, their milk being very thick and creamy.

Work on the plan started at four in the morning when the flensers turned out. When whales were brought in during the night a flag was flown to let us know at the Marine Station. At a quarter to four every morning, someone scanned the

A Norwegian whale-catcher towing its catch into Grytviken Harbour

station through field glasses to look for the flag or, in case the watchman had forgotten to hoist it, signs of whales. On foggy or dark mornings, or when it was snowing or a blizzard blowing, it was difficult and often impossible to see. Then we would go to the station on chance. On fine mornings our early rising was well rewarded by the glory of the sun rising over the mountains.

When we first went to South Georgia we had to walk round the slippery beach to the station. This was very tiring, in our overalls and sea boots, especially when a gale was blowing. Bent almost double and gasping for breath, we would struggle against the wind and snow. Later we had a dinghy and could row over to the plan.

When the weather was calm and the bay clear of ice, rowing was easy though cold work, but it was difficult if the bay was frozen over, as it often was, or filled with glacier ice. When a storm was blowing, it was hell. Sitting in the dinghy half-filled with snow our hands would quickly lose all feeling. Sometimes we tried to row over in the teeth of a south-westerly gale. Bumping up and down on the short, white-capped waves, soaked to the skin with flying spray and frozen to the bone, we would hang on to the oars for dear life. Sometimes we would reach the station exhausted and doubled up with pain from the cold. At other times we would be driven on to the rocky beach where we would struggle through the surf and make our way to the station on foot. Frequently a south-wester would hit us with terrific force and suddenness when we were half-way across the harbour. In a few moments we would be struggling in the foaming sea. It often took us an hour to cross the half mile to the whaling station.

Eventually we had the luxury of a motor-boat which made life decidedly more easy for us, although there were mornings when we could not get the engine to start and had either to row over or walk round the beach.

At this time there were six of us at the Marine Station. Besides Fraser, Rayner and myself who worked on the plan, there was Deacon, a hydrologist whose time was mostly occupied with the testing of the sea-water samples collected in Grytviken harbour or left behind by the *Discovery II*. Deacon and I often went tramping over the hills or ski-ing together. There was also a cook and a steward, both of them Falkland Islanders.

On our departure at four in the morning for the whaling plan, the house was left in peace until our hurried return at half-past eight for a cooked meal. We removed our smelly clothes, but the smell of whale remained pungent and strong on our hands, so that we were not popular. After we had eaten our breakfast of tinned sausage and bread (or the more luxurious penguin egg) we hurried back to the plan. At the Marine Station, Deacon worked in the laboratory and the cook and steward went about their cooking and cleaning. The cook had been a shepherd in the Falklands and Patagonia, and never tired of regaling us with tall stories of his experiences there and of his ability to speak Spanish. One day some Norwegians were working on the Point, and as Fraser wanted to send a note over to the station manager he asked me, since I spoke Norwegian, to give it to them. The cook butted in, saying 'Give me the letter. I will tell them in Spanish'. We waited for the spate of Spanish as the cook opened the window. Waving the letter he called out, 'Hi, *chi*, take this letter over to the *estacion* and give it to the *capitaz*.' The Spanish bubble was burst.

At noon the whalers stopped for a meal and we returned to the station for ours, although we frequently remained behind to work undisturbed for a while longer. This meal invariably consisted of fried whale meat and potato, followed by some sort of pudding.

Hurrying back to the station suffering from indigestion, we worked on until half-past three when the station hooter sounded for coffee. Sometimes we returned to the Marine Station for a hasty cup of tea, but just as often we remained working on the plan during the whalers' absence. After tea we continued either until six o'clock, when work stopped on the plan, or until the whales for the day were finished if that was earlier. Having picked up the various specimens of whale food, parasites and organs, which we had collected during the day—and maybe a huge chunk of whale meat for the unappreciative cook, who disliked it—we packed up and returned to the Point.

After a good wash, we worked in the laboratory writing up our numerous notes and measurements, preserving specimens or preparing and examining them under the microscope until seven o'clock when we had an evening meal. The food was usually the same as that served at midday. We would then relax. Sometimes I would go for a walk round the beach looking for birds' nests, or stay in and wash clothes, cut hair, or just work in the laboratory until bedtime, which was about ten o'clock. Often I would work in the dark-room till after midnight and long after the others were asleep. After such an evening, four o'clock and the new day's work would come round all too soon.

To get up at four in the morning for weeks on end, Sundays included, and in all weathers was rather gruelling. When gales shook the house and snow was driven parallel to the earth, bed was an attractive place which I hated leaving. On the rare occasions when there were no whales and I could lie in till breakfast I would get up with a splitting headache.

The staff at the Marine Station was frequently changed, but the period during which we met with the greatest success was when Fraser, Rayner and I worked together, with Fraser in charge. He was well liked by the Norwegians, and working with him on the plan, time passed pleasantly.

When we first went to South Georgia, the whale-catchers were not equipped with wireless, so that a catcher might be away a week or ten days and no news heard of it. Then one day it would come steaming into harbour towing eight or ten whales. Many of them would be already rotten; sometimes so rotten that after the blubber had been removed, the carcasses would have to be towed out to sea again. When whales were plentiful, work on the plan became increasingly difficult. In those days, ten whales a day was the most that could be dealt with, so that with twenty or thirty lying rotting in the water with gases of decomposition distending them, and with more and more coming in there was tremendous wastage. The stench was awful, but we became used to it.

The flensers always dealt with the freshest whales first. The older ones were left until the last when they were almost useless to us, their bodies having stretched as they were hauled on the plan. After the blubber had been removed with difficulty, the mass of bones with hot, slimy, putrefying flesh adhering to them, littered the plan and presented a problem of removal.

It was the flensers' task to haul the whale's tail first out of the water and to remove the blubber. As soon as the tail was out they would begin cutting skilfully with their big knives which were kept razor sharp and which were fastened on handles about four feet long. The flensers quickly removed the thick blubber in three strips dodging protruding harpoons meanwhile. When the massive, shapeless and wobbling tongue had been removed, the carcass was dragged across the plan for the 'lemmers' to dismember it.

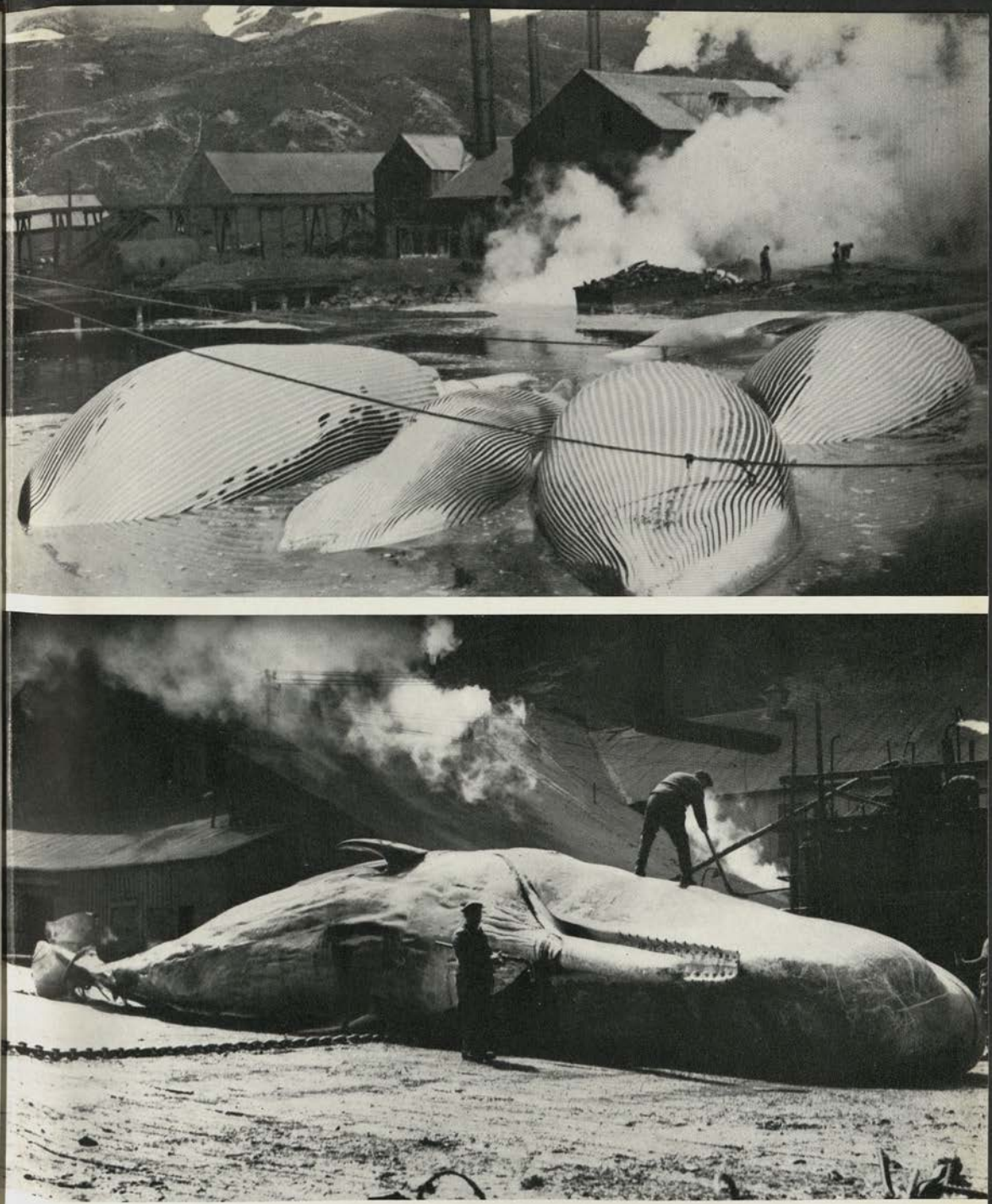
After the head had been removed, it was pulled, bumping and slithering across the plan. A wire was then attached to a flipper and the whole side of the whale was removed in one operation. As it was pulled away from the rest of the carcass, cascades of blood poured from the body on to the plan. Then off came the other ribs, and afterwards the enormous backbone was dissected and hauled up to the bone plan for further dismemberment. The remaining island of meat was dragged to one side and a fresh carcass attacked.

So it went on, day after day. With large numbers of whales to be disposed of, the dismembered carcasses piled up, one on top of the other to a height of five or six feet, for it was impossible at that time to dispose of the meat and bone nearly as rapidly as the whales could be flensed and dismembered. The flesh rotted, and became soft and even more slippery. Over this quagmire of putrid flesh I floundered and slithered—sometimes completely disappearing from view—and dodged wire ropes which whipped perilously from all angles, in the search for organs which would otherwise have been lost to us.

Our routine on the plan was for two of us to do the measuring, while a third made notes of the whales' external characteristics. Since we took about thirty external measurements of every whale we had to move quickly (and carefully, to avoid being injured or killed) or many would have been missed. Our sea-boots had long spikes in the heels, like those of the Norwegians, and these helped greatly in moving about on the slippery plan. As soon as a second whale had been flensed and the severed head measured I would transfer my attentions to the carcass being dismembered, and I would delve into the entrails looking for internal parasites, stomach contents, foetuses and internal genitalia. This was a filthy job.

Having sharpened my flensing knife, I would cut as high as I could reach, if it were a large whale, along the abdominal wall in such a way that, having cut through the two feet of flesh, the whole of the entrails would fall out. This was a ticklish and delicate job, for when the whale was distended with air and decomposition gases the internal pressure was terrific. A slight misadventure with the knife was sufficient to get oneself covered from head to foot with partly digested food and excreta. Such misfortunes were always greeted with howls of laughter. The only palliative was to learn to laugh at one's own misfortunes, and this I often had to do.

The head lemmer was a big, burly, walrus-moustached fellow named Davidson. He was very hostile to us in the early days, and was something of a bully. But eventually he became more friendly, at least towards me, when I had learned Norwegian and was able to laugh and joke with him. One day while working near him I cut through some distended intestine and caused him to be covered from head to foot with excreta, and burst into spontaneous laughter at his



Above: Fin whales at the edge of the 'plan' in readiness for flensing at Grytviken
Below: A sixty-foot Sperm whale, showing its comparatively small, but powerful jaws

appearance. He first glared as if to kill me, swore violently, then burst into laughter himself. I doubt if anyone else could have done such a thing to this roaring bull and have got away with it. Another time a large, rotten Fin whale burst as I stood alongside it, and a large object flew past my face and landed some yards away: it was a twelve foot foetus!

On fine days, in spite of the filth and stench, working on the plan was pleasant enough. But in a blizzard or raging storm, when we were soaked to the skin, miserable and chilled to the bone, it was indeed unpleasant. At such times I was glad to stick my hands into a dead whale to extract some warmth from the flesh.

Photography on the plan was difficult, especially when manipulating a half-plate camera and its stand on wet and slippery flesh, dodging wire ropes and trying not to hold up the work when photographing some internal organ. On rough days it was often necessary for somebody to hold the camera down while I arranged the specimen. Often the camera and I came to grief and both got covered with grease and slime. One nuisance with which I had to contend was the whalers' love of appearing in every photograph. Not until I had learned to speak a language which they understood was this difficulty overcome.

Christmas Day and Good Friday were the only recognized holidays among the whalers, and on these days catchers would return to harbour and tie up at the jetty. On Christmas Day, dressed in their Sunday best, the Norwegians would be out early wishing everybody *Gledelig Yul* and drinking wherever possible. The flensers invariably paid us a visit. During one such visit, Hansen became so expansive as he leaned heavily on my shoulder and dribbled down the back of my neck as to offer me his daughter in marriage. With visions of his wife, who weighed twenty stone, I was reluctantly forced to decline his generous offer. In the afternoon, after a suitable rest, there was usually a football match at the back of the whaling station, and during the evening a concert or cinema show in the church. On Good Friday there was usually a programme of sports, as well as a football match and cinema show or a concert.

Sports were taken seriously, and weeks before the great day, whalers in dungarees and an odd assortment of clothes practised eagerly after the day's work was done.

Good Friday would find the football pitch decked with flags and bunting. Soon after breakfast, the whalers from the catchers enjoying a brief and hard earned rest from whale hunting, trooped from the jetty to join their comrades from the shore. Dressed in their Sunday best, with hands thrust into their wind-jackets, and with their dearly loved yachting caps pulled well down, they lined the football pitch and commented on the prospects of the competitors. Just before the start, the manager, gunners and senior foreman arrived amid much cap raising, to take up a prominent position marked by a small group of chairs. The competitors lined up in the cutting wind which swept down the mountainside and across the field. They were variously dressed. Some wore football gear and canvas shoes, others were in ordinary clothes with coats removed, and some wore dungarees. Few had proper running shoes. But what they lacked in appearance was more than counterbalanced by their keenness and competitive spirit.

During the events the whalers lining the field shouted words of encouragement suitably embellished with adjectives. Great was their enthusiasm for an event well won and great was their derision when a runner slipped and fell in the mud. The mountains echoed with their shouts and laughter. It was a happy gathering; only the cold wind and sometimes the snow marred its pleasure.

By dinner-time most of the events were over and the spectators stamped their feet in a fruitless effort to keep warm. On this day a better meal than usual was provided and the whalers trooped expectantly to their mess-rooms looking enviously meanwhile at the manager and gunners making for the former's house to have a drink. The whalers, too, would have a bottle or two of *schnapps* to be divided among them.

After their meal and a brief rest the whalers were back on the field and in position for the remaining events. By now individual heroes would have emerged, and their further efforts were keenly watched and, as a result of the *schnapps*, cheered with even greater adjectival embellishments.

At half-past three when a general move was made for coffee, the last of the races would have been run and individual prowess acclaimed and admired.

After coffee, the festive spirit was maintained by a football match between a team from the whale-catchers and a team from ashore. Since those on the boats were completely lacking in practice the game was rather one-sided in the matter of skill, but it provided great amusement of which the onlookers took full advantage. Facetious advice, offered in most colourful and unprintable language, came from all sides and provoked general laughter. While the footballers perspired freely, the spectators shivered and red noses not entirely due to *schnapps* were the rule. When the ball went out of play a dozen or more onlookers rushed to retrieve it and a subsidiary football match followed which threatened to overshadow the other. After the ball had been rescued, the game continued with undiminished energy, and with the spectators taking an ever-increasing part in the game it was difficult at times to distinguish them from the players.

At the final whistle, everybody was rolling with laughter, the score forgotten and most people plastered with mud.

At seven o'clock, the church filled to over-flowing with whalers for the prize distribution and a concert. It was cold at first, but from the heat of so many closely packed, heavily clothed bodies the temperature began to rise and with it the smell of whale. The manager and gunners sat in the front row of the gallery; behind them were the lesser lights, and in the body of the hall the rank and file. On a table covered with a blanket rows of silver cups of varying sizes and simple design stood in readiness for distribution by the manager. In one corner a violin and an accordion played Norwegian folk tunes at a terrific tempo. Over the mountains and down the valleys they took us at breathless speed, only pausing at intervals to pick up a dropped note or a lost bar. When the music stopped the manager went to the table and, as the names of the winners were called, he presented trophies amid hand clapping and stamping of feet. This took some time, as there seemed to be an unlimited supply of silver egg cups suitably inscribed. When this was at last over, we settled down to be entertained.

There was a shuffling throughout the hall, and about fifteen men headed by

A Blue whale, ninety-two feet long, on the 'plan' at Grytviken

the station chemist gathered at the front. This was the station choir which, under the direction of the chemist, had been practising assiduously for weeks. Taking a tuning fork from his pocket, the chemist struck a few hefty blows with it on his knee until the right note was captured. Then picking up the note with a long 'doh', these lusty-throated sons of Vikings regaled us with songs of Norway and of the sea. At the end of each song, and in ackowledgement of the generous applause, they bowed solemnly and stiffly from the waist.

The choir was followed by a fellow who recited tongue-twisting rhymes of which I could only pick out a few words. From the laughter which accompanied his effort, I judged the subject matter to be highly diverting, if not appropriate to the hall in which it was recited. A tune or two, attended by much effort, but greatly appreciated, was then extracted from the violin and accordion, and was followed by a hero who sang a solo—no mean effort without music, and one which did not go unrewarded. Now came a ham-handed enthusiast who amused us with some not-so-sleight-of-hand tricks. But it went down well; we loved it all. Finally the choir returned, this time with a little more confidence and rather less throat-clearing, to give us another song or two. When they were over, and the applause had died down, a general move would be made to leave but from the gallery a lone and husky voice would strike up with '*Ja, vi elsker dette landet*', the Norwegian national anthem. This would be taken up with a will by everyone and not until it had been sung through from beginning to end would the scramble into the cold night be renewed.

An hour or two later the catchers would slip away from their moorings. The great day was over and the arduous business of hunting whales was resumed.

When whales were plentiful the whalers were happy, but if for any reason they were scarce for several days, the men became 'whale sick'—a rather acute form of depression.

Under the severe conditions in which they lived, it is not to be wondered at that a number of whalers went mad. There was Charlie Humpback, who drank formalin; the engineer of a catcher who started to climb the ship's rail intending to walk home to Norway; and the doctor who tried the effect of extracts of whale glands—these must have been potent for he imagined among other things that he was a film actor and gave a performance on the deck of the transport taking him back to Norway. In full view of a passenger ship lying alongside he struck attitudes and danced while a toilet roll was unwound. This he rewound and said he would take home and get developed. I later met one of the men who had escorted him on the homeward journey who told me that the doctor had kept them greatly amused. After treatment in Norway I believe he regained sanity and was able to rejoin his family.

There was another whaler from South America who began behaving queerly. I met him on the Point one day with a sheet of paper a yard square covered with lewd and crude drawings which he showed me, talking meanwhile at a great rate in gibberish Spanish. I pretended to take interest, and in my best Spanish told him he should take his drawings, or 'plans', to the magistrate, and I was thus able to get rid of him. The same man tried to hit a Norwegian with an axe. This naturally caused some resentment among the Norwegians who, after searching for

him, found him on board the *Tijuca,* holding a knife against a bulkhead and ramming his abdomen against the point. Through the hole he made he pulled out a length of intestine and cut it off, shouting '*Bueno*'. He was seized, handcuffed, sewn up and was expected to die. Instead, he healed remarkably well and might have recovered had he not secured and hidden a knife brought with some food. Although still handcuffed, he managed to rip open his abdomen again. This time he died and with the thermometer showing twenty-two degrees of frost, his grave was dug in the ground frozen as hard as concrete.

While at South Georgia I made a number of trips aboard a whale-catcher to see how whales were caught and to get photographs. As I knew most of the gunners, this was easily arranged.

One night, shortly after midnight, when the loud clanging of heavy chains came across the harbour as a catcher dropped its whales, I gathered up a bundle of blankets, carefully stowed away a bottle of strong liquid for my Norwegian friends (better to have forgotten my blankets than the bottle), and slung my cameras over my shoulders. In my heavy sea-boots I stumbled in the darkness over the rocks on the beach to the whaling station. Thousands of raucous Cape pigeons filled the air with the noise of their feeding and quarrelling. Otherwise all was still and black clouds covered the mountains.

I clambered aboard the catcher, made my way to the little mess-room, and lay down on a narrow wooden bench. I dozed fitfully and in my coma became aware of the throb of engines, the pitching of the boat, and the roar of the seas sweeping the deck. Pots and pans rattled with the motion of the ship, and later I heard the steward moving about. Soon after there was the sound of hurried feet overhead. The steward shook me and said 'Whales'. I hurried unsteadily to the bridge, for the ship's rolling and pitching had had its effect on me. Here the gunner greeted me heartily and pointed to a whale swimming leisurely ahead. Its blow could easily be seen.

Dancing lightly on the waves, the catcher swung this way and that as we followed the whale. The distance between us lessened considerably and the gunner took up his post in the bow and gave directions by signs. There was no shouting or ringing of the ship's telegraph. Fifty yards away the big flat head of a Blue whale broke the surface. With a loud 'whoosh', it expelled the moisture-laden air from its pent-up lungs. Its head disappeared slowly under the water and its enormous body arched as it prepared to dive once more. The gunner had been waiting for this moment. Bending over his gun he took rapid sight on the whale. With a loud boom and in a cloud of smoke the harpoon hurtled through the air and embedded itself in that mammoth body. In agony and fear, the whale lashed the water and dived deeply to free itself of the murderous thing in its side. Down and away went the whale and out ran the thick manila rope which held it fast. '*Fast fisk*' the man at the wheel called down to the engine room. Several minutes later the whale broke surface half a mile away in a mass of white foam. In its side a big red patch showed up clearly, and after each blow red vapour hung in the air. The whale disappeared slowly from sight and the hauling-in of the line began.

On deck the crew began loading the gun with another harpoon. Half an hour later the whale lay exhausted and helpless twenty yards away. Blood trickled

from its gaping wound and spurted from its blow hole at each laboured breath. A second harpoon was sent hurtling through the air. A few seconds later the muffled explosion of the bomb in its tortured body was heard. When the smoke had cleared away the whale was lying dead under the bow.

While this was happening I had been endeavouring to get photographs. Hanging on to parts of the rigging, dodging showers of ice-cold spray and avoiding flying ropes, I tried to work my cameras. The thick smoke and the motion of the ship, made it difficult work. I longed for the fog to lift.

The whale was brought alongside and compressed air was blown into its body to prevent it sinking. When its shapely tail flukes had been cut off, a bamboo bearing the flag of the whaling station was stuck into its body and the whale was allowed to float. The mate took bearings on prominent icebergs nearby to mark the whale's position, and we set off in search of the whales we had seen blowing in the distance. As we swung away, masses of birds settled on the carcass on which they slithered and slipped as they fought and fed.

Some time later the head of the lookout appeared over the edge of the crow's nest. 'Blow right astern', he shouted. Over went the helm and over heeled the boat as it swung rapidly to take up the chase. The mate banged his foot on the bridge, and the gunner came hurrying up. As we approached, the whale took a deep breath and sounded. Speed was reduced and ten minutes later the whale appeared a mile to our right. It sounded again as we approached, only to appear in an entirely new direction a few minutes later. There seemed little chance of coming up to it and since it was getting dark the chase was abandoned.

Next morning I was on the bridge with the mate when a Fin whale suddenly appeared alongside. The gunner was sleeping and since there was no time to call him the mate left me to take the wheel and dashed off to the gun platform. But the whale disappeared as suddenly as it had come and with it the mate's chance of shining as a gunner. During the afternoon, a Fin whale was caught and chained up, tail first, to the bow. The weather showed signs of getting bad, so we returned to our first whale, made it fast with chains, and headed for Grytviken. We bumped into short seas, and sent up big showers of spray.

At three in the morning I was on my way back to the Marine Station. As I stumbled sleepily over the rocks in the darkness, the catcher was already steaming out to sea once more.

Sperm whales, when caught, were never popular with the flensers for they were the most difficult to handle. The enormous round heads were extremely tough and contained a cavity filled with upwards of six barrels of spermaceti—an oil which turned white and solidified on being exposed to air. Sperm whales feed on cuttle fish and have teeth in the lower jaw only. These teeth were greatly sought after as souvenirs, and two which were given to me, although worn down, weighed two and a quarter pounds each. We never found any ambergris, produced by an intestinal irritation, although we always looked for it.

Sei whales were even more unpopular. They were smaller, their blubber thin, and their appearance round South Georgia was regarded as a bad omen. It was thought that with their coming, the bigger and fatter whales would disappear.

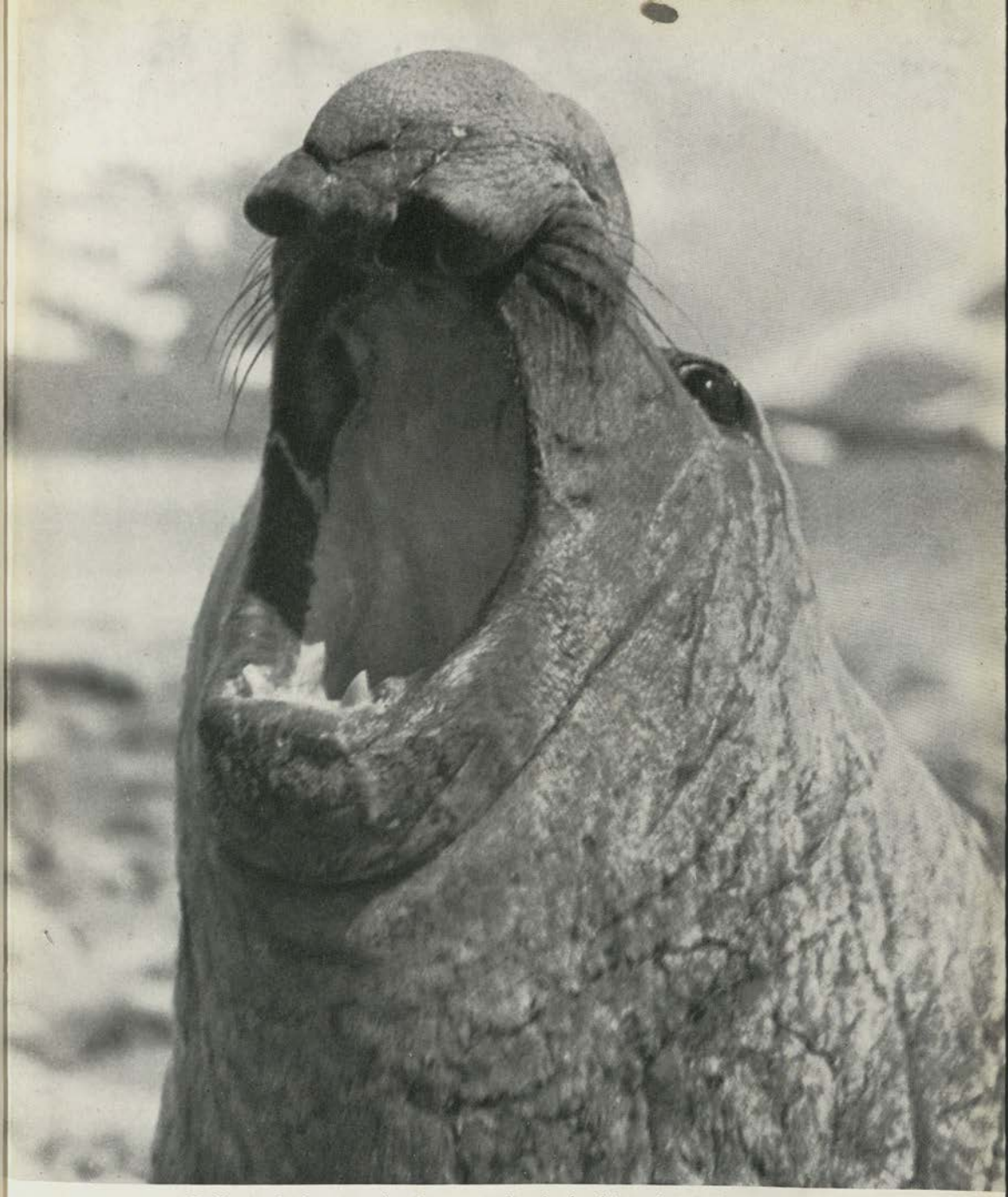
The murderous-looking Killer whale was hated by the whalers, but was seldom seen. Occasionally a whale would be brought in with its tongue removed by Killers, although the rest of the body would be untouched. Apparently the tongue is a delicacy with Killers and whalers told me how they would attack a much larger and inoffensive Blue or Fin whale. They would act in concert: two would hang on to the lower jaw of their victim while the others would take turns to leap out of the water and land on its back, beating the breath out of its body. When the whale was exhausted and its jaw dropped, the Killers would tear out the tongue. The victim would then be left, presumably to die of haemorrhage.

One Easter, a solitary, enormous Blue whale was brought in. It took three days to dispose of—a record for South Georgia. It had a tremendous girth and was very fat. Thick wire ropes snapped with monotonous frequency, and new ones had to be spliced. When disposed of, it was estimated that two hundred barrels of oil had been obtained from it.

Towards the end of the season the whalers would become restless and eager to return to their homes in Norway. Eventually the *Harpon*, full to overflowing, would give three blasts on her siren and leave us. On two occasions I made the long monotonous trip north with her. A brief call was made at Montevideo, where the whalers got hopelessly drunk. When passing through the tropics the whalers gathered on deck in the evenings and danced with each other to the strains of an accordion. Others sat and talked, or listened to the Norwegian folk tunes which though they relieved the monotony made Norway seem farther away. On one such journey the ship's cook, a burly fellow with only one tooth which resembled a tombstone in size and appearance, was presented on his birthday with a toothbrush.

Five weeks after leaving Grytviken we entered the beautiful fjord leading to the little Norwegian whaling town of Sandefjord. The decks were thick with whalers dressed in their best clothes. It was hard to recognize even old friends. Motor-boats and sailing yachts filled with excited and happy relatives came out to meet us, and by the time the anchor was dropped we were completely surrounded by them. The air was filled with cries of recognition and welcome: 'Hello Herman'—'Hello Alf, welcome home.'

Wives and sweethearts clambered aboard, sea-chests were lowered over the side, and very soon only the watchman remained.



Bull sea-elephant roaring in anger: Cumberland Bay, South Georgia

CHAPTER IV

SEALING

Of the five whaling companies operating at South Georgia, only that at Grytviken had a licence for killing sea-elephants. Killing was permitted for about two months at the beginning of the summer, that is September and October, and for a further period of about six weeks when the sea-elephants hauled out in February to moult—unless meanwhile a maximum of 10,000 barrels of oil had been obtained. As far as I am aware, this figure was seldom reached. Only bulls were allowed to be killed, females and young being strictly protected.

At one time the sea-elephant was very prolific in many parts of the South Atlantic. Its principal home now is South Georgia, where there are countless thousands on the beaches. The sea-elephants' rookeries vary from about a dozen animals to several thousand, and from all appearances, their rookeries were even more numerous and far more extensive in bygone days. The ravages of indiscriminate killing by the early sealers reduced their numbers to such an extent that at one time they were almost exterminated.

They are enormous beasts, especially the bulls which grow to a length of about twenty feet and weigh two or three tons. The bull has a trunk-like proboscis, which inflates in anger and in fear, and which hangs over the mouth when at rest. They are ugly beasts. Their bodies are round and shapeless and have a thick covering of blubber, for which they are killed.

The females grow to about half the size of the bulls, and although better-shaped are still unlovely. They wallow in mud and excreta as do the bulls, and their rookeries are extremely smelly places. Despite their habits they had a great attraction for me and I seldom visited a rookery without having a camera with me. Normally they are not dangerous animals, but to be alone in a rookery during the breeding season is decidedly unhealthy.

Towards the end of winter—about September—and when the snow was still deep, the bulls began to arrive. They hauled leisurely out on the beaches and waited for the arrival of the females, for which they fought. They are polygamous, and a bull might have anything from ten to thirty females in its harem. As soon as the females began to arrive, the bulls lost their lethargy. They roared in challenge at nearby bulls, while latecomers roared defiance, as they came flopping awkwardly up the beach, at those already in possession. When the challenge was accepted the bulls approached each other, stopping every few yards to throw back their heads and roar angrily. When only a few feet separated them they stopped, and with flaming eyes, proboscis inflated, and blowing small clouds of hot, angry breath, they endeavoured to strike fear and trembling into each other. Rearing up on their hind quarters and facing

one another, they poised to strike. Then lunging violently, the earth shaking at the impact, each sought to bite the other. These fights seldom lasted more than a few minutes and were never fatal. Sometimes an eye would be lost, a chunk of blubber removed, or a proboscis torn, but little more. When one decided it had had enough, it would raise its head and tail, swivel rapidly on its belly, and hurriedly make off, looking furtively round at the victor who would be roaring triumphantly.

Sealing began when the bulls hauled out in September. For this purpose an old whale-catcher or old trawler was used. At the end of our first winter in South Georgia, the whale-catcher *Granat* went off sealing and was expected to be away about ten days. At the end of a fortnight she had not returned, and the Norwegians at the whaling station became anxious. A few days later a catcher from one of the other stations which had already begun whaling, entered the harbour with a pram[1] in tow and a number of men on deck. They were the crew of the *Granat*. While entering one of the bays in search of sea-elephants, the *Granat* has struck a submerged rock and sunk immediately. The crew had just managed to scramble into the pram, but had had no time to save either food or clothing. They had rowed ashore and made a shelter in the snow by upturning the boat. They had killed sea-elephants for food. With the blubber they had made a fire and for covering they had used the wet and greasy hides. It had been intensely cold and often snowed. Nine days later a catcher out unusually early looking for whales, had seen smoke rising from the top of a hill. It was a fire of seal blubber dragged there through the snow by the crew of the *Granat*.

I made my first sealing trip on an old whale-catcher soon after this incident. As an experiment it had been built with twin propellers and had two harpoon guns, one in the bow and another in the stern. As a catcher it was not a success, and was relegated to sealing.

During the ten days we were away the weather was rough and it snowed and blew the whole time. We hugged the rocky, ice-bound coast and rolled heavily on the angry waves as they roared towards the shore where they expended their force in a mass of foam and clouds of spray. Our decks were awash and it was bitterly cold. The little mess-room was hot and stuffy. But as I was sea-sick I had to make frequent excursions outside to relieve my pent-up feelings; the cold would quickly drive me back again. Fortunately—for my bed was a narrow settee—we anchored every night in one harbour or another where we hoped to find seals. We found very few, for the weather was too rough to induce them to haul out. We lay at anchor for three days in King Haakon Bay owing to rough weather. It was here that Shackleton had landed with his companions after his memorable eight-hundred-mile journey in a lifeboat from Elephant Island, and then weak with hunger and fatigue had crossed the huge glaciers and ice-bound mountains to get help for his comrades.

One evening while we were at anchor, a solitary bull sea-elephant was seen lying on a rock about half a mile away. From sheer boredom as many of us as

[1] A small, light, round-bottomed boat about ten to twelve feet long and tapering to a point in depth as well as in breadth at the bows. It is very useful for landing in a rough sea or on a sandy beach, but very difficult to manage except by an expert.

could crowded into the pram and went off to kill it. There was only an inch of freeboard by the time we started off, and water lapped over the edge into the boat. We saw a few sea-leopards, and shot them for food.

With a poor cargo we returned to Grytviken in a storm, plunging into heavy head seas and sending up showers of spray. I still remember our journey in the darkness, and my shouted conversation with the skipper on the bridge. It seemed impossible to find Grytviken Harbour and to reach it safely in the inky blackness; but eventually we did, and arrived thick with frozen spray.

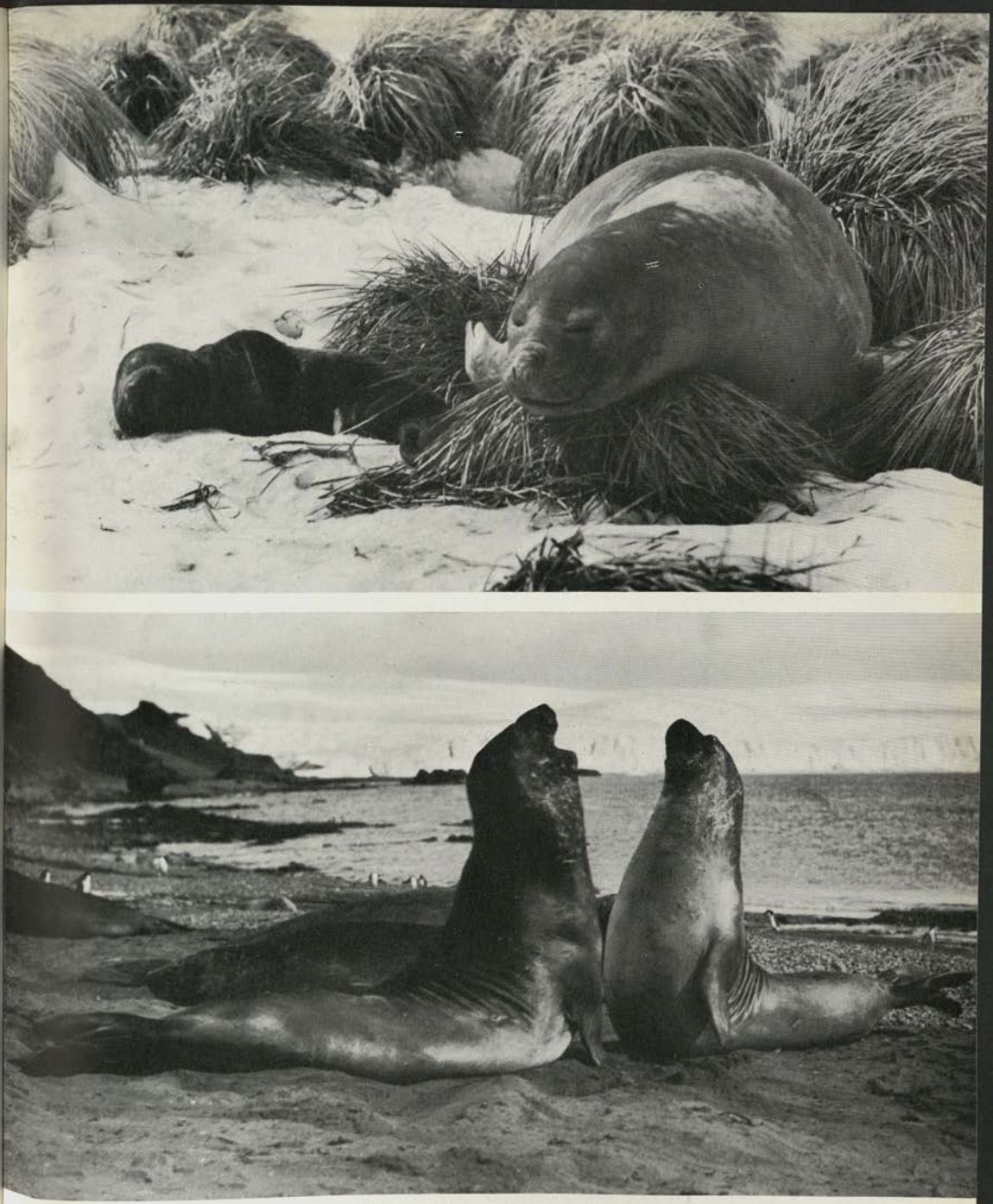
Later I made trips on the *Dias*, an ex-trawler, and was away for eight or ten days at a time. There was a little mess-room where the skipper, mate, engineer and cook lived. It was reached by descending a short vertical ladder, at the top of which was a tiny galley. A shoe horn was needed to seat oneself at the table. A large closed stove in the room was kept alight most of the day. At night when the fire was out I was usually too cold to sleep and lay awake shivering on my hard, narrow bench.

The skipper of the *Dias* was a Swede, fair-haired, tall and thin, and not very friendly. He spoke rapidly through his teeth and was most difficult to understand. He was a good sealer and drove his crew hard. Carl, the mate, was a rough and very tough Norwegian who revelled in his gory calling. With a mass of untidy black hair, unwashed and unshaven and with a thick, home-made cigarette for ever drooping from his mouth, he looked uncouth indeed. He had a craving for alcohol, which he consumed undiluted in large quantities whenever the opportunity presented itself, and then all else would be thrown to the wind. But he was a kind man and very shy. Except when in search of alcohol, he seldom left his beloved boat. He knew no navigation, but none knew that dangerous coast better than he and there was never a better sealer. He would stay three or even four years together at South Georgia. Then, in one glorious wild orgy in Buenos Aires in as many weeks he would be penniless. His kind heart and heavy drinking made him an easy prey of the many harpies and crooks there. He would never return to his home in Norway.

The engineer spent most of his time in his bunk when he was off duty. He had two loves—race horses and wine. The former he had once owned himself; the latter he never owned for long.

The cook was a tubby fellow, intelligent and humorous, and an expert skater. During the long hours of inactivity on board when we were weather-bound, we talked and joked together. He once told me that when he had to fry onions in a hurry, he added sugar, which made them brown. The crew, he said, would not understand that the onions were not cooked as long as they looked brown!

The crew were mainly Russians, Poles, Norwegians and Argentines, with odd members of other nationalities. All except the Norwegians came down each year from Buenos Aires on the *Tijuca*. They led hard lives but were good fellows, and I got on well with them. In the evening when at anchor, they gathered round the stove smoking and drinking maté. This was a herbal tea which they put in a painted wooden container shaped like a tumbler. After hot water had been poured on it, they then drew it through a tube having a strainer fixed at



Above: Female sea-elephant and its new-born pup in Cumberland Bay
Below: Bull sea-elephants fighting on Livingston Island, South Shetlands

the lower end. The maté was passed round, but while not denying its beneficial qualities, I could not overlook how unhygienic was the habit and politely declined when it was offered to me.

The tossing of the *Dias* made me sea-sick, and I ate little food. On one trip I ate hardly anything except raw penguin eggs flavoured with salt, pepper and vinegar.

The atmosphere in the mess-room was conducive to sea-sickness, for it was hot, stuffy, and full of smells. There was the smell of the galley, of seal blubber, of stale air and, in the evening when work was done, of socks soaked with sea water and seal oil, festooned round the fire to dry.

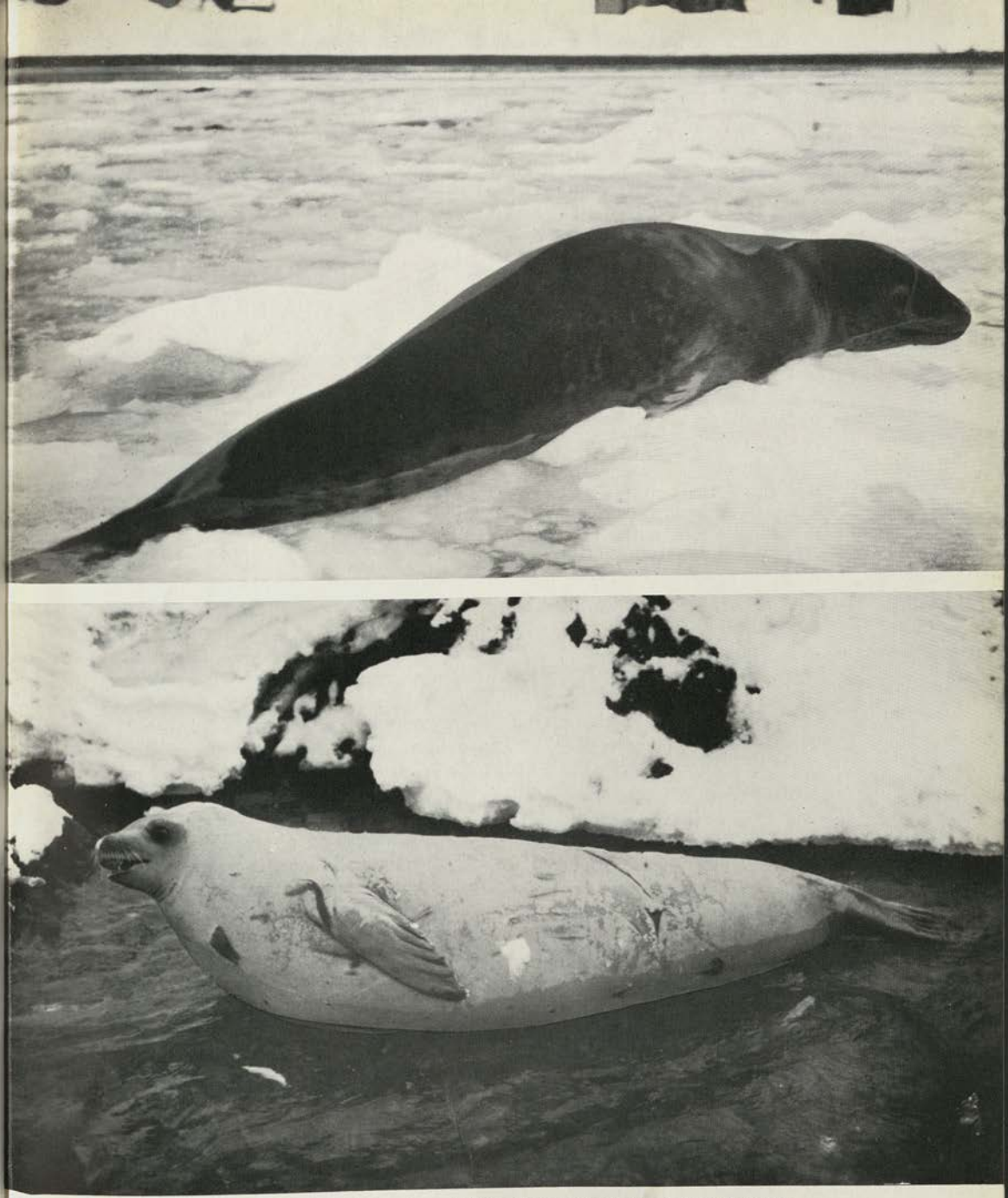
I once tried sleeping in the fo'c'sle, where there was more room, but sleeping on bare boards with no blankets and with only the steel plates between me and the sea was a difficult and chilly business. As I lay awake I could hear seals swimming on the other side of the plates and sniffing the boat.

We anchored every night, and before going to bed I would get a bucket of cold water from the cook and have a wash on deck. Apart from the cook, I do not remember anyone else on board who regarded washing as necessary. One evening we anchored rather late, and by the time I went on deck for my wash it was dark and the moon was shining brightly. We were close inshore with Mount Paget immediately behind us rising steeply to the sky. The fringe of the mountains was brightly lit by the moonlight, while the bay lay in the deep shadow of Mount Paget. From a glacier at the base of the mountain ice drifted and surrounded the *Dias*, grating her sides. On a nearby beach one could hear numbers of sea-elephants—females calling their pups, or the challenging roar of a disturbed bull. Through the narrow harbour entrance I saw several icebergs, gleaming white and ghostlike in the moonlight, slowly drifting by. Reluctantly I returned to the fug below.

The skipper was not interested in anything beyond the getting of a full cargo. I was there to get photographs, but he was not very co-operative. For example, when coming out of a harbour where we had anchored for the night I saw some Weddell seals with young on the beach—a rare sight at South Georgia for they usually bred farther south and only came to the island as occasional visitors. The skipper would not stop for the quarter of an hour necessary for me to get photographs. It was an opportunity I never had again. There was also a fine iceberg nearby with an archway worn through it. It looked beautiful in the sunlight, and I asked him to pass near so that I could photograph it, but he would not play.

I went ashore with the sealers whenever possible. The pram was usually overloaded and was always in danger of being swamped. Rowing hard on top of the swell, dodging rocks and floating ice, we would reach the shore and scramble off in a mass of swirling foam.

As soon as we got ashore, the sealers, armed with guns, villainous-looking knives and long bamboos, began by separating the bulls from the females and drove them, protesting violently, down to the beach. With the help of the bamboo, the bulls would be provoked to rear up on their hindquarters and as they roared angry defiance, they were shot through their open mouths. They collapsed with



Above: Adult sea-leopard at rest on drifting glacier ice in Grytviken Harbour
Below: Crab-eater seal, its sides scarred by Killer whales, at Grytviken

a thud. Sometimes only a few sea-elephants would be found on a beach; sometimes there were thousands. If the number was large, it was rather dangerous to move among them, especially during the disturbance caused by the killing. An angry old bull guarding its harem might come headlong for you, and in your retreat you might be met by vicious females who snapped and lunged as you tried to pass.

I wandered among the sea-elephants alone with my cameras, looking for suitable subjects. On one occasion I wanted to get a close-up of a large bull with its proboscis at rest hanging over its mouth. There were thousands of sea-elephants about, and I selected one which was lying a little apart from the main body. I could not walk up to the bull as that would merely alarm it; besides, I had an unwieldy half-plate field camera which needed careful focusing. So I got down on my stomach in the snow and wriggled slowly towards the animal, hoping it would mistake me for another sea-elephant. When I was about four feet away, I brought my camera slowly in front of me and, making as little noise and movement as possible, focused carefully through the back. Then turning the camera upside down and using the flat base as a direction finder, I waited until the trembling, snorting proboscis was at rest and took my photograph. I was glad to wriggle away again, for the sealers were killing near at hand and frightened bachelor bulls were hurrying into the sea or farther inland; and I was afraid my bull would also take fright and come headlong for me. In the soft, deep snow, the bull could move more quickly than I could run. If it attacked, my plan was to roll quickly sideways to miss its headlong charge; then, before it had time to rear up and swivel round in my direction, to regain my feet and put a safe distance between us.

In a similar way I also approached a young bull on a wet, pebbly beach, to get a close-up of its head to show the peculiar habit sea-elephants have of breathing through one nostril while keeping the other closed. In this instance I could have got away more quickly, but it was still difficult to work behind a large camera and keep a wary eye on the sea-elephant.

I never used a telephoto lens, preferring always to approach my subjects as closely as possible. When I was alone, as I usually was, it was rather more risky than when I had a companion to keep a lookout and warn me of danger. For example, having provoked a bull to rear up in anger in front of me, I would approach to within six feet and, with my head down, focus my reflex camera. My companion's job was to shout when the bull lunged so that I had time to jump quickly sideways. Similarly he would warn me of a female's approach from the rear while I was busy photographing. When alone, sometimes my only warning would be a sudden feeling of hot breath on my hand or a slight rustle at my back when I would jump—and jump quickly. Sealers had occasionally been caught by the subtle approach of a female, and I had heard cases of a hand or a buttock being badly bitten. When they have young, females are vicious and spend much of their time quarrelling and snapping at each other.

The young are pleasant little things with large liquid eyes and black coats. They start scratching themselves with their flippers within a few hours of birth, as they lie asleep in the snow. Sometimes they lie in the same position for a long

time. Then the heat of their bodies melts the snow around them and soon they are lying in a hollow. This hollow gradually deepens, and is finally so deep that they cannot get out, and may die of starvation. Once we saw a pup at the bottom of one of these holes. It had obviously been there for some considerable time for it was weak and starving. It took two of us to lift it by its tail flukes on to the surface of the snow and then we saw that its extremities had already started to rot. Weakly it went in search of food, sucking vainly at the sides of females completely indifferent to its suffering.

As I trudged along the beach or through the snow to each new harem, so the head of the bull in possession would rise to watch me carefully until I had passed. Then he would subside again amid his seraglio. If I approached his harem too closely, he would rear angrily and come lunging through and over the females, intent on driving me off. When I had beat a retreat, he would lumber slowly back to the centre of his females. If a neighbouring or a bachelor bull tried to poach upon his preserves he would roar in fury for a few minutes, then plunge headlong towards the intruder which frequently took flight. Sometimes the intruder would give battle and amid protesting females and pups a fight would follow, the victor taking possession of the indifferent harem.

When the sealers had finished their gory task of killing and flensing and the deck as well as the hold was piled high with greasy, wet, smelly blubber over which we had to climb in going to and from the mess-room, a course would be set for Grytviken. Then in a matter of hours the whole business would begin again, until the time limit for hunting seals was reached.

There were three small rookeries within walking distance of the Marine Station, and these I often visited. The bigger rookeries could only be reached by boat and such journeys usually made a Sunday afternoon excursion for those of us on the Point. On fine days when whales were scarce, I would be landed by motor-boat at one of these rookeries early in the day and be picked up again in the evening.

By the time breeding had ended, most of the snow on the beaches would have gone and the pups would have shed their first black coat. They grew quickly and soon became round and fat. The mothers then deserted them, and the pups congregated on the beaches. Growing bolder, they would enter the shallow water and let the waves break over them. Then, having got used to the water and learned to swim, they went off to fend for themselves.

Most of the bulls and cows, having fasted during the whole of the time ashore, would be thin and flabby and ready to return to sea. The harems broke up, and the bachelor bulls tried to intercept and cover the females as they made for the sea. Two or three months later they would return to moult. Where, a few months earlier, had been clean, deep snow, there was now thick mud and tussock. In this the sea-elephants wallowed, and with the mud and the patches of falling fur, they were an ugly sight indeed. The smell, too, was appalling. Sometimes one came upon small lakes of filth and mud in which sea-elephants lay completely submerged, or perhaps with only nostrils protruding. Between the clumps of high tussock, deep channels had been worn by these huge lumbering beasts through the centuries. Moving in and out of these channels with my camera

A young sea-elephant, its first moult completed, learning to swim in Cumberland Bay

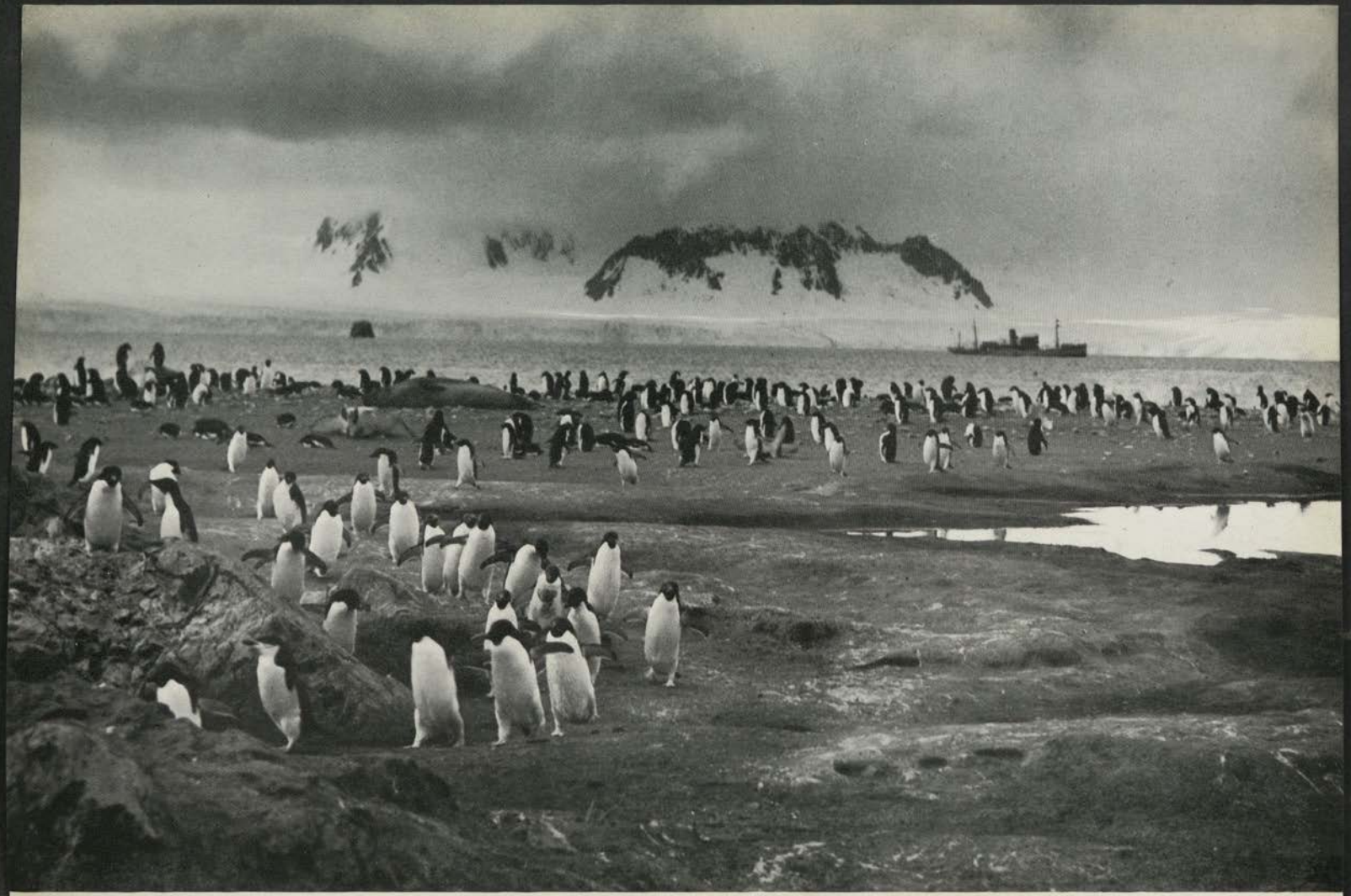
I would slip and slide, and would suddenly be confronted by a large bull which immediately showed its resentment at being disturbed. I usually beat a hasty retreat, reflecting that it would not have made a decent picture anyway.

Compared with the sea-elephant, other seals were rare at South Georgia. In summer we seldom saw a sea-leopard and I cannot ever remember seeing a Weddell seal except in winter when they hauled out on the snow to sleep. Much rarer still was the Fur seal which had been prolific in Southern seas until reduced almost to extinction by the ravages of the early sealers. At South Georgia it had been completely wiped out. We were therefore most pleased and surprised one day when we went ashore from the *Discovery II* in one of the bays and found a number of Fur seals with pups. It was foggy at the time of our very short visit, but I managed to get a number of photographs.

Crab-eaters, found in abundance on the pack ice farther south, very seldom visited South Georgia. Crab-eaters do not really eat crabs but a shrimp-like crustacean from three to four inches long. Their teeth have cusps which interlace and form an effective sieve when the jaws are closed. The shrimps are thus retained and the water rejected. Crab-eaters are essentially inhabitants of the pack ice, where they are met with either singly or in small groups but never in numbers approaching that of a sea-elephant rookery. For the most part they lie on the pack ice sleepy and indifferent, and only show energy when roused suddenly and violently from their slumbers. The Crab-eater is about eight feet long, has a smallish head and varies in colour from grey to fawn.

During one winter we were called to the whaling station, where a Crab-eater was resting in a hole between two steep banks of snow. It rolled on its side and growled when I approached with my camera. On one side it had a deep wound, partly healed, which had evidently been caused by a Killer whale. A Killer whale caught off South Georgia was found to have seven seals in its stomach.

Sea-lions never visited the island. The Ross seal had never, to my knowledge, been seen on the island, nor did I ever see one anywhere during my voyages in Antarctica.



Adelie penguins (with a lone Ring penguin in the foreground) returning in file from the sea to their rookery on Livingston Island, South Shetlands

CHAPTER V

PENGUINS

In my fifteen years of acquaintance with penguins, I suppose I must have seen several millions of these quaint birds which cannot fly and which have been popularly called 'little old men in evening dress'. They are delightful creatures. Their agility, perseverance, intelligence and stupidity amazed and fascinated me. Penguin rookeries attracted me and my camera like a magnet and I was always loath to leave them. They varied from a few dozen birds to several hundred thousand, when a whole hilltop or mountainside would be black with them.

There are several species, varying in size and colour from the droll-looking little Adelie with its white front, black coat and circular white eyelids, to the tall, majestic, more gaily coloured and very rare Emperor penguin. Emperors differ from other species in their remarkable habit of hatching chicks in the darkness and rigours of the Antarctic winter. They sit on the ice, huddled and bent and plastered with frozen snow, endeavouring to keep warm the egg resting on their feet—no easy task in a howling blizzard and a temperature of about fifty degrees below zero. To sit in those frightening surroundings in the darkness in the perpetual ice and snow, under a black sky across which the eerie lights of the aurora twist and turn, patiently awaiting the arrival of the chicks, shows a hardiness and strength of purpose hard to realize. During my travels I saw very few of these wonderful birds. We were very surprised when, one day in summer, we saw one standing in the tussock just outside the Marine Station. It did not move off at our approach, and with the cook and steward on each side holding a flipper, it walked slowly and sedately between them.

Other species common in the Antarctic are the Gentoo and Ring penguins; at South Georgia, King and Rocky penguins are also found. Occasionally in the big rookeries farther south, odd pairs of Rocky penguins were found making their nests.

The King is next in size to the Emperor and is rather similar in colour. When nesting they sit huddled close to one another and spend most of their time quarrelling—presumably to relieve the monotony of incubating the egg which they cover with an abdominal skin-flap. One day the *Discovery II* anchored in a harbour to pick up some stores of petrol left ashore some time earlier, and there I found a number of King penguins nesting and quarrelling vigorously. I tried all sorts of tricks to divert their attention and keep them still for a moment, but none of my efforts succeeded until I tried singing. That stopped them—long enough, at least, for me to get my photograph. The chicks when fully grown look like gentlemen in fur coats, while their companions which have moulted look most sleek and slim. They are a sorry sight when moulting.

Above: A pair of Rocky penguins on their nest

Right: Courtship of a pair of Adelie penguins at the edge of a partly built nest

The Gentoos were most prolific at South Georgia, while farther south the Ring, and the amusing-looking Adelie predominated. We collected penguin eggs whenever possible, for all except the most fastidious deemed them a luxury.

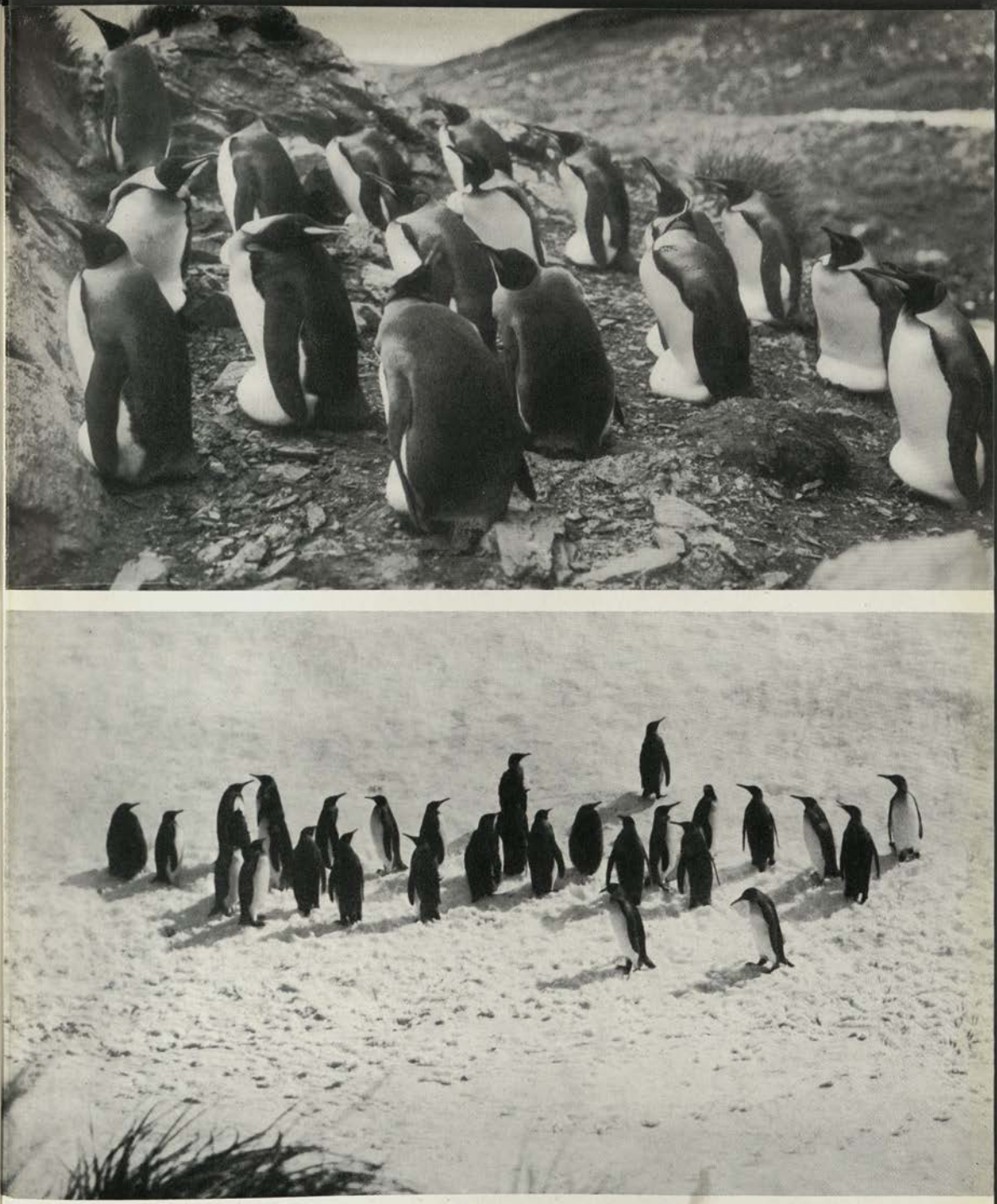
Penguins came ashore in the early summer when the snow had begun to melt. A form of courtship and selection which, I believe, is common to all species then took place. Females stood around waiting expectantly; the males visited them and they eyed one another up and down. If the female was indifferent, the male passed on. He might have a stone in his beak which he had carefully brought from the beach and which he would lay at her feet by way of offering. If she took no interest in it he would pick it up again and walk dejectedly on. When mutual interest was shown the birds would stand facing each other with necks outstretched, waving their heads from side to side and emitting a low guttural note. This was repeated at intervals, the birds subsiding into a sitting posture meanwhile.

Then followed the task of collecting stones for the nest. Despite the fact that there were thousands of stones around, the male wandered off looking for others which took his fancy. Carrying them back one by one in his beak, he laid them down at the feet of his mate to be arranged neatly around her. Sometimes the penguins carried stones long distances in their beaks to the rookeries. I have seen them pick up a stone on the beach as they came ashore, and clamber up wet, sharp and slippery rocks and often fall while taking their prize home. It would have been much easier to have climbed without the stone, but this did not seem to weigh with them. On the way back through the snow, they would stop, drop the stone and rest, and then carefully pick it up again before proceeding.

Nests were usually built close to one another and often touched, so that the stones overlapped. When hatching the egg, which the proud parents would often look at and admire, the sitting penguins would resort from sheer boredom to stealing stones from neighbouring nests. While stealing an unwitting neighbour's stones, another bird would probably be taking stones from the stealer's nest.

At Harmony Cove in the South Shetlands I saw a small rookery of Gentoos whose nests were so close together that nearly all of them overlapped. The nests were rather high and were made of thousands of small round pebbles. These the penguins constantly picked up from the foot of the pile and replaced on the top, from where they immediately rolled to the bottom again. Undismayed, they continued their endless task, the futility of which did not seem to dawn on them.

Considering the vast number of penguins in the Antarctic and the congestion in the rookeries, it was amazing how very little discord one saw. Only rarely did a stand-up fight between two penguins take place, when hefty blows from flippers would be exchanged at great speed. Otherwise, the only other disturbances were when penguins wandering about the rookery bent on stealing stones were met with pecks and blows from all sides. When they hurriedly sought and reached safety, the culprits and all around would sink into apathy, and the incident would immediately be forgotten.



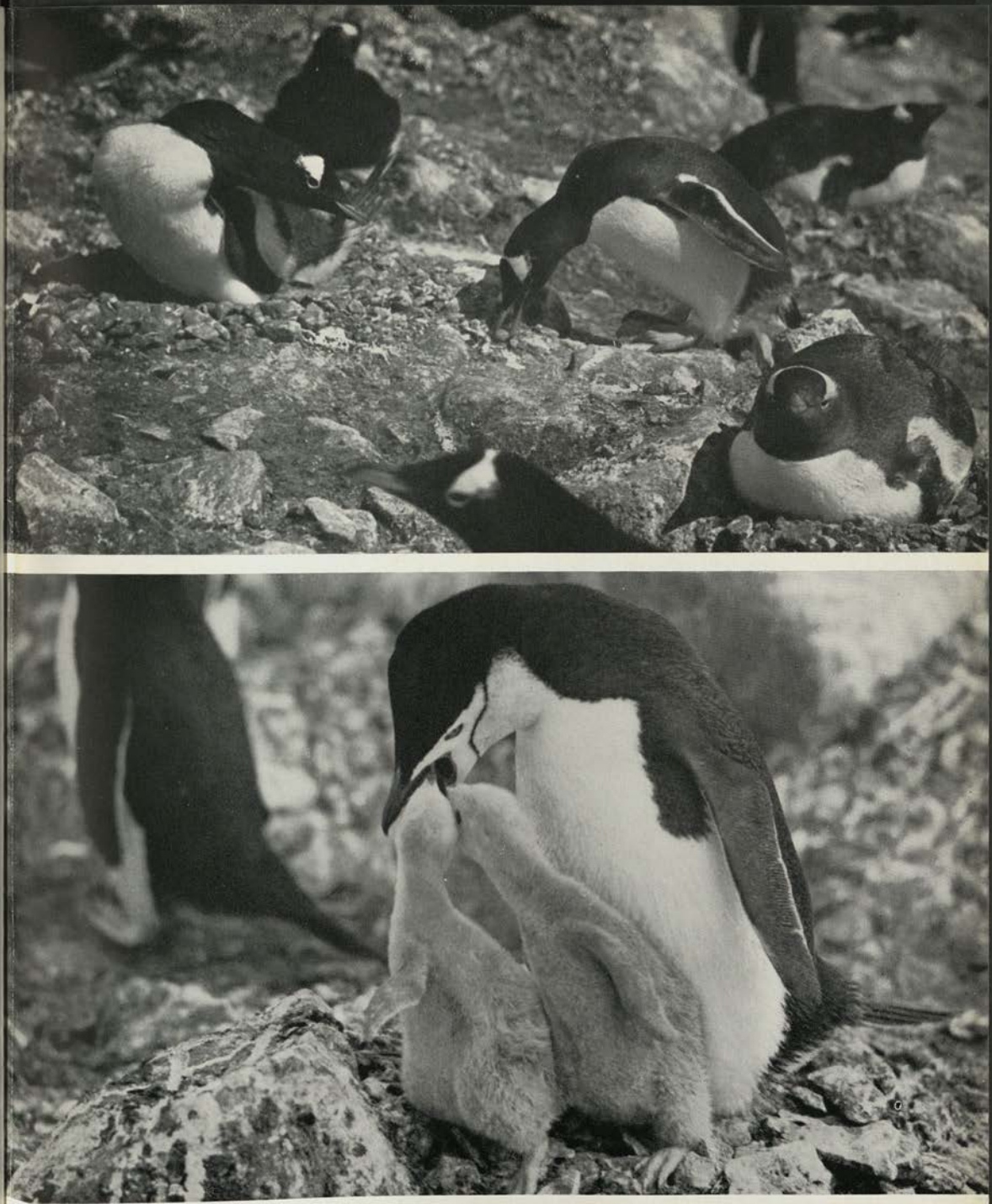
Above: King penguins nesting. Each bird's egg is covered by a skin-flap
Below: A colony of King penguins; the birds are moulting

Even the presence of their enemy, the Skua gull, was taken for granted, and only when one made off with an egg or small chick was any consternation shown. Then it was pitiful to see their efforts to fly in trying to beat off the intruder. Their only other real enemy was the sea-leopard which would lie in wait under overhanging rocks or ice for penguins going to sea. The penguins were aware of this danger, and would stand chattering excitedly before taking the plunge, each seeming to urge the other to dive first. As soon as one did so, the chatter ceased and all would look intently in the direction it had taken. If after a few moments it did not appear on the surface, the chatter would recommence until another penguin had been hustled into the water. If this one appeared safely off shore a general exodus would take place.

I remember watching a drama enacted in a small bay in the South Orkney Islands. A group of Adelie penguins was quietly resting on the deep snow of the beach. In the harbour drift ice packed the water's edge. Suddenly the penguins sprang to life and began running excitedly up and down the water's edge. A sea-leopard appeared in the bay chasing a penguin which was trying frantically to escape. Jumping out of the water on to chunks of ice, then diving in again, it twisted and turned with the evil-looking sea-leopard in pursuit. The penguins on shore followed the chase, squawking excitedly, until a few minutes later the battle had been won and another exhausted penguin lost. Then, dejected and unsettled, they huddled together once more.

Undoubtedly, the most delightful time in penguin-land is when the chicks are hatched. Proud parents bustle around, tenderly helping the little balls of fur to get comfortable on their beds of stones, protecting them from the cold and that ever-present, ever-watchful bird of prey the Skua gull which, perching upon a nearby rock, never misses an opportunity to swoop down on an unguarded egg or young chick strayed from its nest. Sometimes a Skua stands brazenly in the middle of a rookery waiting for the chance to pounce upon and eat its living victim. I have seen two Skua gulls with a live chick, each tugging in opposite directions to pull it to pieces. Once in the South Orkneys I saw two Stinkers (Giant petrels) trying to tug from each other a half-grown penguin. With their feet firmly planted and with open flapping wings they went backwards and forwards, each trying to wrest it from the other.

With the arrival of the chicks, life in the rookeries becomes more busy and the parents more important and proud. Tending the chicks with loving care, they watch most carefully that they do not stray far from the nest, and gently 'nose' them back with their beaks. The chicks are delightful little things. Their demands for food are constant and the tiny heads are placed in the parents' mouths to receive the regurgitated food. As they grow, so their demands for food become more persistent and frequent, and once they are half grown the parents are given no relief at all. Sometimes the parent seeks relief in flight. The older bird beats a hurried and dignified retreat through the rookery, with a loudly protesting, dirty and ungainly chick in hot pursuit, slipping and slithering in the mud and guano as it chases its parent. Then taking the line of least resistance, the parent stops, opens its mouth, and the chick gulps down the proffered food and makes its way slowly back to the nest. Once I came upon a parent with a



Above: Gentoo penguins nesting. One is stealing a stone from a neighbour's nest
Below: Ring penguin feeding two ravenous chicks at once

chick so big that it had to climb on a rock to feed it. Often parents are in danger of being pushed off rocky ledges on to rocks far below, or into the sea. I came upon an Adelie feeding a nearly fully grown chick on the edge of a rock beyond which was a drop of six hundred feet. The chick was pushing vigorously and the parent was having to dig its claws into the rock to keep its foothold. On these rocks below I saw one or two penguins which had evidently fallen from that great height. They looked all but dead, and a few feet away Skua gulls were waiting for them to die. The following day I went to find out what had happened to them, and was amazed to find them walking about. I cannot think of any other animal or bird more hardy or more tenacious of life than the penguin.

When the chicks are fully grown and moulting begins the parents, who up to then have kept constant watch on them and have taken turns to go to sea for food, collect the chicks in small groups and leave them in charge of a few adults. These encircle, feed and protect them, and prevent them from straying while the other parents go to sea for food and pleasure. After a while the adults are relieved and another group takes their place, until, when the moult is completed, they leave the chicks to their own devices.

The chicks, looking very trim in their new coats, collect on the beaches and paddle and splash at the water's edge. Then one day, as if by common consent or command, they rush for the water, squawking excitedly, and dash in, splashing, twisting and turning, as happy as sand-boys.

The rookeries are now deserted and soon the last of the penguins has gone to sea.

Photographing penguins was a labour of love—hard labour as a rule, but still pleasurable. It was a game of patience and perseverance and one had to develop a technique of approach in order to get the best results. I have sat for hours on end among the penguins with snow swirling around me or in a gale, hungry, cold and frequently soaked, waiting for the weather to improve to get a wanted photograph. With frozen hands and gasping for breath, I often had to lean on the camera to steady it. On the wet and slippery rocks, the tripod would occasionally shoot away or I would come down with a bump in the mud and guano.

When out sealing, I visited penguin rookeries whenever an opportunity presented itself. Since these trips coincided with the egg-laying season, I used to collect a number of eggs for food. Later, on the *Discovery II*, there were more opportunities for visiting rookeries, but time and weather were difficulties with which I always had to contend: other difficulties there were in plenty, but these were constant. I would have liked unlimited time. But it was somewhat disturbing when waiting for a photograph to know that I was probably keeping a boat waiting. This sometimes happened and did not increase my popularity; but most disturbing of all was to see the weather clear after I had returned to the ship and to think of the photographs I had missed.

The *Discovery II* was never in any one place long, so no opportunity of going ashore could be missed. This often meant getting up in the early hours of the morning. I would drink something hot to get the circulation going, then muffled up, shivering and laden with cameras I would stagger on to the heaving deck.

Adelie penguin being pushed by its greedy chick to the edge of a rock ledge, as it feeds the young bird with regurgitated food

Jackass penguins marching into the sea for a swim in the Falkland Islands

I would jump over the ship's side at the right moment into the waiting boat. We would start rowing for the shore; one moment we would be on the crest of a wave, and the next in a deep trough and out of sight. Rowing hard, skirting towering icebergs and baling out water kept us busy. It was a chilly job, and the five miles to the shore seemed unending.

We would lie off shore waiting for the swell to ease temporarily, then, dodging the rocks and grounded ice, we would row hard for the steep pebbly beach on which the swell pounded with a roar. Then in a mass of swirling foam and shifting pebbles, we would scramble ashore and heave the boat to a place of safety. Sometimes the only possible landing place would be on rocks or rocky ledges. In the heaving sea this was rather more hazardous and difficult. To the ordinary complications I had the added one of getting the cameras safely ashore. They often got soaked with sea water and encrusted with ice, but fortunately I never had one seriously damaged. In the intense cold the shutters of the still and the mechanism of the cinema cameras would not function properly. Then I would have to place them inside my clothes next to my shirt until they warmed up again.

Once ashore, I would make a bee-line either on skis or by trudging through the snow for the nearest rookery. I would arrive there, sometimes perspiring, sometimes frozen. The penguins would eye me suspiciously and to allay their fears I would sit quietly on the edge of the rookery until they realized that I meant no harm. After my exercise this was a chilly job and I would feel the perspiration down my spine slowly turning to ice as the intense cold and the icy wind penetrated my several layers of clothes.

Then I would move among them, picking my way slowly and carefully so as not to disturb them or their nests of patiently collected stones. Mildly protesting, the penguins pecked at my legs and feet as I passed; others showed more resentment and gave me a hefty blow with their powerful flippers to help me along. Once I stood straddle-legged over a nesting penguin for over half an hour waiting to get a 'shot'. At first it protested violently at this indignity and gave me some lusty blows with its flippers, but gradually it subsided and ended up by gently nibbling my feet. My patience was well rewarded for I got a rare photograph of a harassed parent feeding two chicks at once.

During my last summer in the Antarctic I had the rare good fortune to see two albino penguins in the South Shetlands, and both within a month. The first, an Adelie, was in a rookery near which three of us were camping. Unfortunately the sailor who found it killed it for a museum specimen before I could take a photograph. The second, a Ring, was found on a small island in a rookery which had recently broken up. It was standing apart from the others and I wondered if it had led a separate existence or had been accepted by the others with their usual resignation. I was not able to do much with my cameras as the weather was dull and it was nearly dark.

Sometimes I had the luxury of a sailor to help me carry my cameras, but usually I wandered about alone. This was hard work and rather risky, and when crossing glaciers I was always fearful of falling down snow-covered crevasses. But it was worthwhile—even the sitting for hours in a snow storm and the long

journey back to the ship. Wet, cold and hungry, I would feel as happy as a sand-boy after a successful day.

I had one staunch helper and good companion in a sailor named Briggs. He had been on several of the *Discovery* expeditions and besides being a good sailor was noted for his cheerfulness and helpfulness. He liked coming with me and did so whenever permission could be obtained. We were usually well burdened, taking with us a half-plate and quarter-plate camera, and a cinema camera, stand, skis and ski-sticks, food and spare clothing in case we were caught in a snow storm or blizzard and had to stay the night away from the ship. He was a keen ornithologist and anxious to help at all times with my photography—including posing for some of my pictures—although he knew nothing about it himself.

Large numbers of penguins were never met away from the vicinity of the rookeries. Occasionally at sea a group would bob up their heads to have a look at the ship, and then disappear. Small numbers of penguins might be met in the pack ice. Whenever the ship got stuck in the ice, little black objects would suddenly appear out of the vast whiteness, and converge upon us. They were our inquisitive friends the penguins, and whenever I set my camera down on the floe they would crowd round and examine it with great interest.

On many a stormy night when the *Discovery II* was stopped for scientific work, with the wind howling, huge white-capped waves roaring by, and icebergs and drifting ice looming up out of the darkness to threaten us, the friendly squawk of a penguin attracted by the ship's lights would warm and cheer us and seem to promise that we would meet again.

Adelie penguins hurrying to and from a rookery on Livingston Island

Wanderer albatross

CHAPTER VI

OTHER SEA BIRDS

THE WEALTH of bird life at South Georgia, ranging from the great Wanderer albatross to the tiny Wilson's petrel, made the island a bird photographer's paradise. Most of the species were sea birds and were very numerous. Some nested on flat ground, others on rocky mountain ledges, and others in the soft ground or under rocks. The first I could photograph easily enough, the second were rather more difficult; but as the third returned to their nests only at night and as I had neither flash nor trip wires, I was unable to photograph them on the nest.

Some of my most joyous days were those on which there were no whales and none were expected, or when we had finished our whale work before breakfast. Then I would be taken by motor-boat to one or other of the beaches in Cumberland Bay—of which Grytviken formed a part. There I wandered about with my cameras until evening, looking for likely subjects. It was warm and exhausting work walking on pebbly beaches or threading my way through the wet and slippery channels between the clumps of tussock, or climbing the hills and mountainsides with a heavy half-plate and quarter-plate reflex camera and stand. When the weather changed to a gale or rain or snow, then the hours of waiting to be picked up would be long and cold.

Throughout my wanderings the high-pitched call of the Sooty albatross would come from high up the mountainside. Following the direction of the noise, I would climb with the two heavy cameras slung round my neck and threatening to strangle and overbalance me. On arrival, I often found there was no bird, and that my efforts had been wasted. But by watching the birds landing and taking off I found some nests, usually on ledges and difficult to photograph.

The Sooty albatross has beautiful plumage and a white marking over the eye very similar to that of the Adelie penguin.

Wanderer albatrosses did not nest near Grytviken, so that my only chance of visiting them was when I was out on a whale-catcher, a sealer or the *Discovery II.* They are enormous birds with a wing span of twelve feet. On land they are awkward, but in the air they are the poetry of motion and beautiful to behold. Wheeling, turning, diving, cruising at high speed or simply hovering above the ship, taking advantage of every breath of wind, they seldom flapped their wings; sometimes when skimming a few feet above sea level they would give an odd beat to rise above an oncoming wave, or to gain height in the air on a calm day. When cruising in a high wind they would suddenly sweep upwards and allow the wind to bear them swiftly backwards. Then they would come swiftly past the ship again, with eyes alert, skimming the wave-tops, which the tips of their wings sometimes

touched. When landing on the water they used both feet and wings as a brake. On the *Discovery II* I often tried to photograph them in flight, but owing to the heavy rolling, high winds and the cold, it was not easy. The best opportunities seemed to occur when I had not a camera handy and my duties on board prevented me from waiting on deck for long periods.

At the beginning of the breeding season the Wanderers landed on the open spaces of the nesting grounds, and courtship began. It was an elaborate courtship, during which the birds faced each other with outstretched wings and necks and danced around and 'brayed'. When the selection had been made each pair settled down on a nest of mud, frequently touching beaks and caressing. If they were approached they turned and faced the intruder, and with a clap-clap of their big beaks endeavoured to frighten him away. Seen at close quarters, their beaks are beautiful and fearsome things.

Their eggs, each weighing about one pound, are white with rust-red spots at one end, and are very thin-shelled. I have often seen an adult stop its day-dreaming and look down at the egg on its feet as if to assure itself that it was still there. Then after nibbling and gently turning the egg with its beak it would subside and dream once more. These eggs when made into an omelette, or scrambled, were very good to eat and were highly prized.

At one period on the *Discovery II* we were overrun with rats. Many of these we caught in traps and threw overboard. The Wanderers following in our wake immediately pounced on them and swallowed them whole.

The chicks remain on the nest thoughout the winter without attempting to fly, and sometimes need to be driven off by the adult birds returning for the new breeding season.

The parents are supposed to desert the chicks after a few months, leaving them on their nests throughout the winter in thick snow to subsist on their own fat. I believe, however, that the parent-birds do occasionally return and feed them, for I once saw and photographed an adult sitting near a full-grown chick which had almost completed its moult. As the adult sat quietly beside the nest the chick nibbled gently at its beak asking for food. After a while the parent stood up and, bending forward, opened its beak. Into this the chick put its own beak crosswise and ate the food regurgitated by the parent. When fed, the chick resettled itself comfortably on its nest while the parent got up and, with wings outstretched, lumbered heavily over the uneven snow into the wind until it became airborne and was away.

The chicks are covered with a thick grey down which gives them good protection against the severe weather. They grow quickly, but the moult, when started, is gradual. When that is complete, the bird hobbles about the nest in its new dark plumage. It is not until a year later that it is resplendent in its beautiful and foamy white plumage.

The Wanderers are surprisingly quiet birds compared with the raucous seagulls and Cape pigeons, and when wheeling about the ship never emitted a sound.

There are two other species of albatross which nest at South Georgia. The Grey-headed and the Black-browed. The Grey-headed builds its high cone-shaped

Wanderer albatross nesting at Campbell Island, south of New Zealand

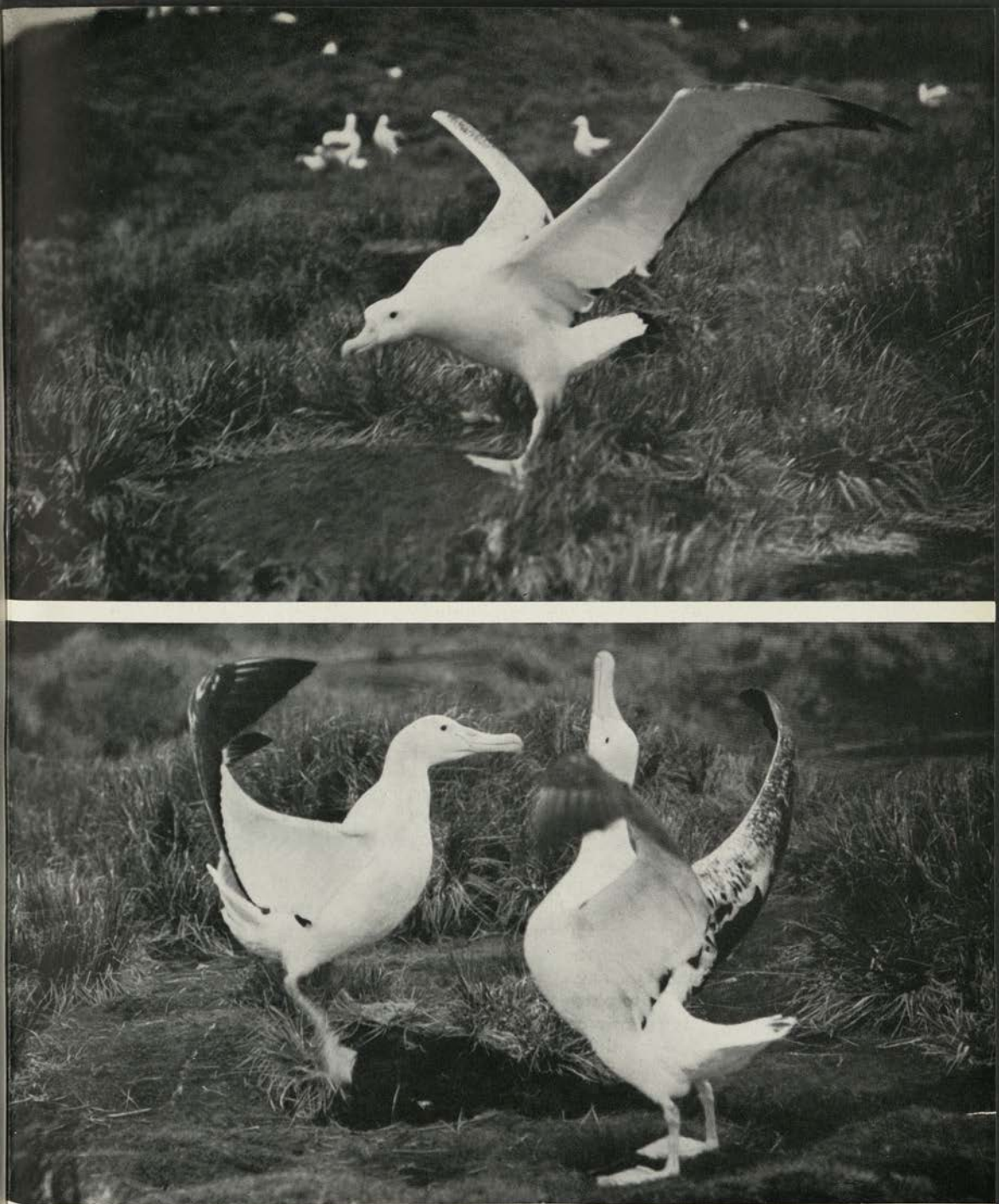
nests in terrain similar to that chosen by the Wanderer, and is not numerous. The Black-browed, or Mollyhawk, nests in rookeries on the mountainsides and is fairly plentiful.

Next in size to the albatross is the Giant petrel or 'Stinker' as it is generally called. This bird is found over a wide area, including South Georgia, the South Orkneys and the South Shetlands. The Stinker is an unlovely bird, both in appearance and habits. Its colour ranges from a dark brown to a white, though white is rare. When approached it vomits at the intruder and if any of the regurgitated food gets on one's clothes, the smell is in keeping with the bird's name. They are greedy birds and at the whaling station gorged themselves until they were unable to rise from the water, and often had to vomit before being able to take off. I have seen them preying upon young penguins when the rookeries broke up. They nest on flattish land and do not seem to mind whether their nest is of soft earth or stones. Their eggs are large and good to eat.

The bird which was even more disliked was the Skua gull—a noisy, evil and cruel bird. It generally nests near penguin rookeries, and is ever on the alert for victims, stealing either the eggs or the young chicks, which it eats alive. Watching from a vantage point, it immediately flies high into the air when anyone approaches, and turning and swooping swiftly down tries to hit the intruder a blow on the head with a wing, then turns and squawks and screams fiercely. Skua gulls are particularly aggressive when they have chicks. There are usually two —at least for the first two or three weeks after hatching; but at the end of this time only one is to be found in the nest. Skua gulls have the reputation of eating their young. I seldom got an opportunity of getting close enough to photograph these birds as they invariably took flight. Once in the South Shetlands I came upon a Skua which did not leave its nest but screamed viciously with wings outstretched as I approached. When I got within six feet, it flew, still screaming, at my face. Three times it did this as I prepared my cameras to get some cinema and still shots, then, since I did not approach nearer, it stood on its nest screaming defiance. When it settled down, still screaming, two young chicks emerged from the rocks and sought the cover of its wings.

Dominican gulls were found in enormous numbers at South Georgia. During the summer, while whaling was in progress, they fed on the offal and whales waiting to be flensed and filled the air with their raucous squawking. When the whalers left the plan at meal-times, the gulls settled on the carcasses and meat in droves. Their nests are difficult to find in the long tussock grass but the agitation of the parents when I was near eggs or chicks helped me to find them. Most of the gulls migrate at the end of the summer. Of those that remain, large numbers die of hunger and cold. The wings of dead gulls and Skuas we used in place of hand brushes, and in many respects we found them superior.

Cape pigeons formed by far the largest part of the bird population—excluding penguins—in South Polar regions. At South Georgia they were found in countless thousands. The bays in which the whaling stations operated were filled with them, busily feeding, chattering incessantly and often quarrelling. The hubbub they created continued all day and even during the hours of darkness. Despite their presence in such vast numbers, a nest was very seldom found at South Georgia.



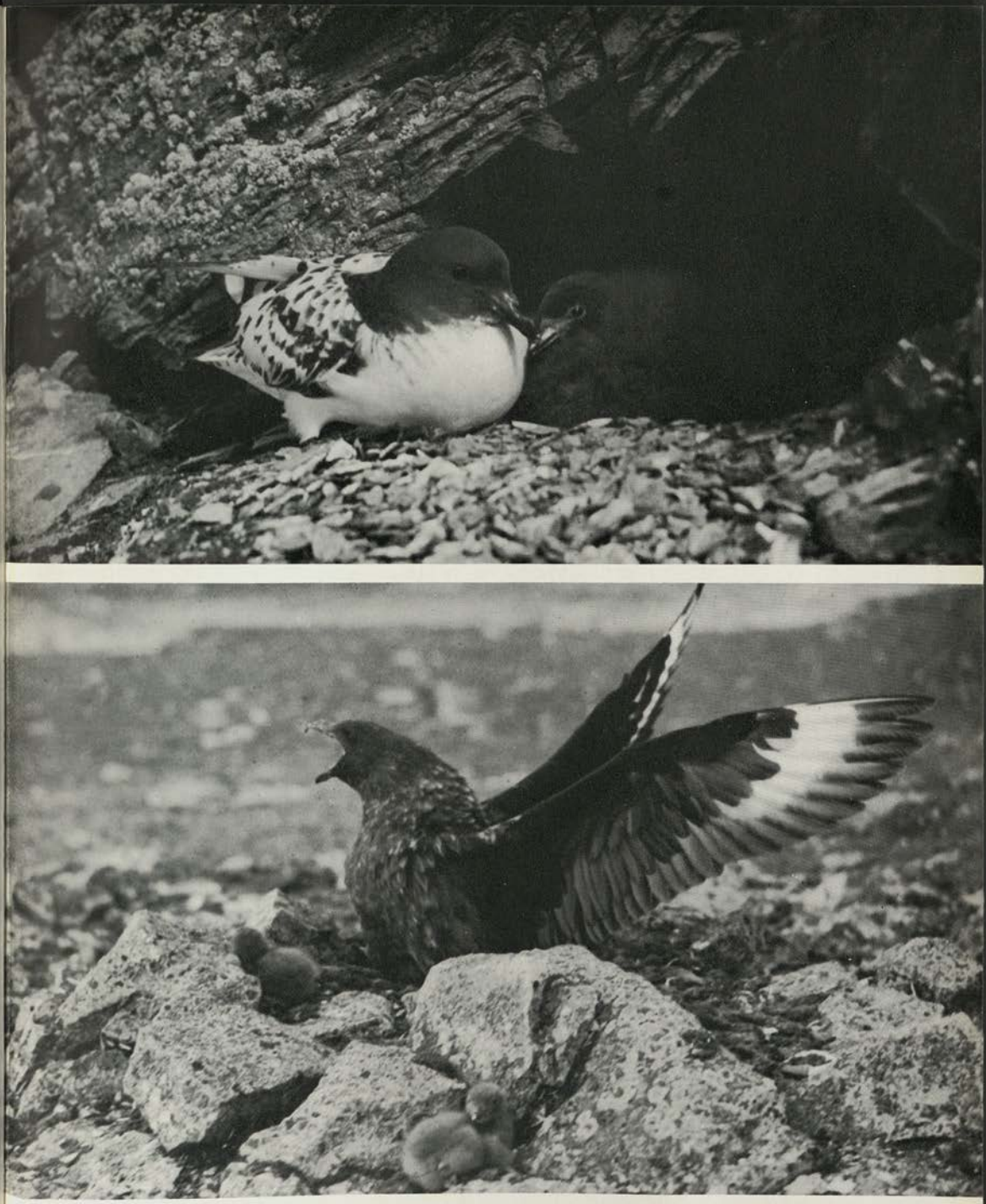
Above: A Wanderer albatross arriving at an empty nest on South Georgia
Below: The courtship dance of a pair of Wanderer albatrosses

Farther south in the South Orkneys and South Shetlands I found many nests, but most were inaccessible, on ledges or vertical rock faces. I found one nest on Gibbs Island in the South Shetlands which was easy to reach. The *Discovery II* had anchored about five miles out, and a party of us had had an arduous row ashore on an unusually warm day. Penguins in a rookery through which I passed were limp and gasping for breath. The snow in the rookery had melted and mixed with the guano, producing a slime from which rose an overpowering smell. At the edge of the rookery was a muddy slope at the top of which was a ledge, and in a hole in the rock I found a Cape pigeon and chick. I set up my camera and got a photograph which pleased me greatly. As I was packing up, the mud on the slope gave way under my weight, and camera, stand and I fell back into the rookery below. The camera was undamaged, but my trousers collected a decoration of colour and smell which caused such consternation when I returned on board that I had to throw them away.

The Silver-grey Fulmar is a beautiful bird, slightly larger than a Dominican gull. I cannot remember ever seeing one at South Georgia, though they were numerous farther south. Like those of the Cape pigeons, the Fulmars' nests are found on ledges on steep rock faces, and in most instances are impossible to reach. Once when in the South Orkneys, with the *Discovery II* anchored a good way out at sea, Briggs and I set off early one morning in the ship's pram for the shore. Briggs was an expert at manipulating that difficult boat and we successfully negotiated the numerous big rocks in a narrow channel through which a strong current and heavy swell were running. I managed to scramble with my cameras on to a narrow ledge on a small rocky island. I climbed up the steep ice face, raised my head above a ledge and was greeted with a jet of orange-coloured oil from the throat of a Fulmar sitting on its nest. Dodging this defensive outpouring I hung on, waiting for the bird to calm down. This it eventually did, and I quietly climbed up on to the ledge. It was very cold and had begun to snow. I sat there, frozen, for a long time waiting for the weather to clear, while Briggs made a landing elsewhere. I found the Fulmar had a chick, and by the time there was a break in the weather and I was able to get a photograph the bird had lost its fear of me. I managed to get down safely and recalled Briggs who was very disgruntled at the long wait. That was the only time I can remember him showing displeasure in the many arduous and even dangerous excursions we made together in search of photographs. It was noon before we got back to the ship and had our first meal of the day.

I had often tried to photograph Wilson's petrels but because they are so very small and active on the water—upon which they dance and flutter while feeding—my efforts proved unsatisfactory. I found several nests which were either under flat rocks in the soft earth or deep in rocky crevasses so that they could not be photographed. But one afternoon in the South Orkneys when the ship was anchored because of a heavy haze, a few of these petrels came feeding round the ship on the smooth water. I got my camera and waited patiently. After one or two attempts I succeeded in getting a photograph. I never got a similar chance again.

At South Georgia there were a number of Blue-eyed shags or cormorants which made good eating. The whalers and sealers shot them whenever possible.



Above: Cape pigeon and chick on their nest

Below: Skua gull about to attack in defence of its chicks

These birds are intensely curious and can easily be attracted by whistling, when they fly low and directly overhead. Their nests are high and conical and when the adults feed their young their long necks writhe with great rapidity like a couple of snakes in deadly embrace.

In the Falklands I found cormorants nesting among Rocky penguins, and at Port Lockroy in the South Shetlands I found some living in amity among Gentoo penguins.

Another bird which always lives near penguin rookeries is the Sheathbill, an all-white bird about the size of a pigeon which brazenly runs among the penguins looking for anything to eat, including eggs and chicks. I found two of them on one occasion feeding on an ailing penguin chick. They nest in holes in the rocks where, during courtship, they stand about a foot apart bowing rapidly to each other. Owing to their habits, they did not endear themselves to us very much.

There is another white bird, rather similar and better looking than the Sheathbill, which could always be found in large numbers at the edge of the pack ice. This is the Snowy petrel, and its presence at sea is a sure sign that pack ice is not far away. I never got a good chance to photograph this or the Antarctic petrel, a larger brown and white bird which also rarely leaves the ice edge.

Another interesting bird is the Shoemaker which one often saw at sea, but never on its nest in the day. It burrows into the soft earth in tussock beds on the hillsides to make its nest, which is often waterlogged. The nest is rather like a rabbit warren, having a number of entrances and going a long distance underground. I often tried to dig out a nest, but after wasting considerable effort and time would be no nearer the elusive bird. The nests were too deep to see the bird or to reach it by putting one's arm in, for they remained very quiet and did not betray their presence. If one stamped hard on the earth above a warren, however, a high-pitched chatter would signify a bird was at home. Once, after having found a bird by this means, I dug for over two hours before reaching a rather frightened and bedraggled inhabitant. Its nest was very wet and soft, and its brown feathers were covered with mud. The bird was about the size of a half-grown cockerel, and had an egg which was white and about the size of that of a duck. After photographing the bird I replaced as much of the nest as I could to protect it from the weather and Skua gulls.

I always got a thrill out of a new photograph, and I spared no effort to obtain one. In fact I think it was photography that, during my long years of physical and mental struggle in the Antarctic, kept me from 'going round the bend'—the sailors' picturesque way of describing madness. Once when I mentioned confidentially to some friends on board that I thought I was 'going round the bend' they laughed uproariously and said that I had been round there for years.

Silver-grey fulmar and chick nesting on a rock ledge in the South Orkneys

CHAPTER VII

ABOARD THE *DISCOVERY II*

THE *Royal Research Ship Discovery II*—to give it its full title—was a steel ship of about 1000 tons built specially for work in the ice. She replaced Scott's ship *Discovery* which was first bought and equipped by the *Discovery* Committee for extensive programmes of oceanographical research in the Antarctic. Scott's ship was slow and unwieldy and liable to be blown greatly off her course in a gale. So the *Discovery II* was built with all modern gear and equipment and sent to Antarctica, while her famous wooden namesake was made snug in the Thames.

The complement of the ship numbered fifty including officers, crew and scientific staff. Most of the ship's officers belonged to the R.N.R., and most of the crew were merchant seamen. The scientific staff was divided into two sections, zoological and hydrological; I belonged to the latter. The senior scientific officer was also the leader of the expedition, although the captain was in charge of the ship.

The crew lived in the fo'c'sle where their quarters were small, stuffy, not too comfortable and, in stormy weather, difficult of access. The officers and scientific staff were amidships where they had separate and fairly roomy cabins. These cabins were situated below deck in two rows, one on each side of the ship. Between these rows was the dark-room, a store-room and food hold. Right aft, the petty officers—the bo'sun, carpenter, and others—had a mess-room and double cabins difficult to reach or leave when the decks were a mass of swirling water.

Amidships on the main deck were the zoological and chemical laboratories and above them the ward-room. Above this was the bridge and the captain's quarters.

The *Discovery II* had graceful lines and was a thing of beauty—though not a joy for ever. She looked big when tied alongside a jetty, but when storm-tossed on an open ocean, hundreds of miles from the nearest ship or land, she seemed tiny indeed. We were proud and fond of her—but no one would believe this if the adjectives used to describe her when she was wallowing in heavy seas could be repeated.

During the last few weeks of the *Discovery II*'s very brief stay in London between commissions, she became a hive of industry and preparation. Her usual berth was St Catherine's Dock where provisions and scientific stores of all kinds arrived in a continuous flow. A commission lasted about twenty months, that is, two Antarctic summers and one winter. During the winter the ship would go for refit either to South Africa or to New Zealand. This refit would last anything from four to six weeks, and gave us a welcome opportunity to recuperate both mentally and physically, and to prepare us for further struggles ahead.

The bulk of the ship's company invariably sailed again, so that newcomers were easily initiated into the routine of the ship. As sailing day approached, life

became hectic. Stores were checked and stowed away, last-minute purchases were made and last, but not least, the last drops of pleasure were squeezed from what time was left to us. By the time the ship sailed we were exhausted and in need of rest. Amid cheers, waving and good wishes we cast off, gave three blasts on the ship's siren as Tower Bridge was raised in salute, then, turning slowly, we left the crowds behind and made our way down the Thames.

In the open sea the ship began to roll and to the pangs of parting were added those of sea-sickness. If sea-sickness is the sign of a bad sailor, then I was one, for I seldom avoided being sick after being in sheltered waters. Sometimes it was ten days before I could throw off the sickness, during which time I dragged myself about and worked in agony. I cannot think of anything worse than feeling really sick and having to stagger about on a heaving deck with knees knocking and head reeling, and with green seas pouring on deck where water already swirled and boiled.

On the way south we gradually settled down and got to know new shipmates. Through the tropics we got our gear ready, our chemical apparatus fitted up and chemical solutions mixed.

The chemical apparatus consisted of three large bottles from which ran rubber tubes to carry the chemical solutions to burettes on the benches. The burettes—long, thin, finely graduated measuring tubes, with glass taps fixed at their lower end—were attached to brass rods, firmly screwed into the benches.

Two of the bottles contained silver nitrate for estimating the salinity of the sea-water samples, while the third contained sodium thiosulphate, used in determining the amount of oxygen in sea-water.

On another bench were rows of glass tubes, each about fifteen inches long, and more burettes. A clockwork thermograph, which rotated slowly and had a tube of mercury leading down to the side of the ship, recorded on a chart the temperature of the sea-water we were passing through. This enabled us to see at once changes in temperature; when the chart recorded about minus two degrees Centigrade we knew that pack ice was not far off. The thermograph was a source of attraction to all on board.

In addition, there were racks fitted over the sink and holding bottles of chemicals, and a large cupboard with shelves having various sized holes for holding chemical bottles safely. There were also two racks of heavy books which in stormy weather were sometimes thrown across the laboratory and on top of us, and were a permanent threat to our safety.

Finally a few other items such as drawers fitted so as not to open with the rolling of the ship, and revolving chairs which were screwed to the floor and could be locked in position, completed the equipment of the hydrological laboratory.

After the days of rush before our departure, time passed slowly. We broiled in the sun and slept on deck at night. As the *Discovery II* was not built for tropical climes it was like a furnace in our cabins.

On one commission we called at the lonely island of Tristan da Cunha, having food and clothing on board which had been collected for the islanders in England. We arrived off the island before daybreak, but the islanders had already seen us and, dressed in their Sunday best, came off in their canvas boats to meet us. It

The *Discovery II* in pack ice off Enderby Land

was a red-letter day for them for until our arrival they had not seen a boat for nine months, and were completely out of many commodities.

The men were wearing all sorts of odd garments, but all wore long white stockings made by their womenfolk. When allowed on board they asked for cigarettes, which they smoked contentedly. A small boy who was with them was given huge slices of bread and jam. His face was wreathed in happy smiles as he devoured them—the first he had ever tasted.

Briggs and I were among the first to go ashore in one of the canvas boats, and we suffered the indignity of being carried ashore on the backs of the islanders. From the ship we had seen the womenfolk standing outside their houses, looking in our direction, but as soon as our heads appeared over the bank on the beach they disappeared into their homes.

One of the islanders, named Glass, took us into his house of stones, mud and grass, and introduced us to his wife and married daughter. They were very shy. He asked his wife to give us some goat's milk, and this caused a flutter, as they possessed only one glass. The problem was solved by emptying a jam jar containing some dead flowers, and pouring the milk into it. Briggs got the glass; I got the jam jar, at the bottom of which was a bright green slime. Briggs said that he liked his milk and quaffed it quickly. But I, with my eye on the slime, was not so enthusiastic. After one or two polite attempts I remembered that Briggs had had nothing to eat before coming ashore, so I nobly offered him mine. In the presence of our host he was unable to refuse, but he expressed his sentiments rather forcibly later.

We left the Glass family with a pair of their home-made stockings as a souvenir. These stockings vary from all other varieties known to me in that they stretch with wear instead of shrinking, which probably explains why the men had rolls of stocking above their knees.

We quickly made friends with the menfolk, but the women needed some encouragement to show their faces. All the islanders were embarrassingly polite, saying 'Yes, sir' to everything, and 'Morning, sir' no matter how often we met.

The present settlement at Tristan da Cunha was founded in 1817 by the Englishman, William Glass, his wife and two children, and two stonemasons. At their own request this small party was left behind when the British garrison on the island was disbanded. Shipwrecked mariners, and British, Dutch, Italian and Asiatic settlers have added to the original party, and at the time of our visit the number had increased to 185 inhabitants.

The head-woman's name was Reppetto. She was a grand old lady, wise and of fine principles, who advocated limited families so that the number of the islanders should not increase unduly and exceed the food-producing capacity of the island. I gathered that her husband was dead, so that she was 'reigning' alone. Her son, who was her aide-de-camp, was a big fellow with arms and hands like a gorilla's. By comparison with his mother he was slow both in wit and movement.

The islanders' diet was simple, with fish as the main item. Meat and vegetables were scarce, and many things such as sugar were non-existent. Food was a constant problem for them, as indeed it must have been for the cattle and chickens,

which were extremely lean. There were plenty of rats which destroyed much of the islanders' food, and at one time the people had contemplated leaving for another island near by because of the menace. The health of the islanders was good and their teeth excellent, and the majority lived to a ripe old age. Despite the absence of soap, their houses and clothes were clean. The faces of the young people shone with health and cleanliness.

They were glad of the stores of food and clothing, which were divided equally. I believe we took a number of Bibles, but since few of the islanders could read and since each family already had about five, those we took could have been of little importance to them.

Their method of self-government was simple and effective. Women giving trouble were put into stocks made from a soap box and men were thrashed. But the number of delinquents was small. During the two days we were there, I wandered about with my cameras and got a good series of photographs of which an album was made up later and presented to His Majesty King George V, who took a great interest in the islanders.

Steaming south, it became rapidly colder, and scientific work began. Every night at eight, and in all weathers except the most stormy, the ship was stopped for 'stations'.

The ship was turned into the wind, and the depth of the sea was determined with the echo-sounding apparatus. This consisted of an electrically driven hammer and a listening apparatus fitted in the bottom of the ship. From the time taken by the sound waves from the hammer to travel to the ocean bed and back, the depth of the sea could be calculated. With this knowledge we knew to what depths we could safely lower our bottles—sometimes to a depth of three miles. Two machines, one in the forward 'well' deck and one in the fo'c'sle head, were used to lower specially designed metal bottles for collecting the water samples. The bottles could be sent down open, and when the required depth for a sample was reached could be closed by weights, which were sent sliding down the wire, striking and closing the bottle. At the same time thermometers attached to the bottles recorded the temperature. A station down to five thousand metres would involve the collecting of twenty samples at various depths, and according to the depth and the weather, the time taken to collect these was often very considerable. While the samples were being taken the wires holding the bottles had to be kept vertical—no easy task on a stormy night—and this was the responsibility of the officer of the watch. He had to keep a constant lookout for straying wires and had to juggle continually with the propeller and rudder to keep the wires upright. On the fo'c'sle head machine only five bottles could be lowered at a time, so that two and sometimes three separate hoists had to be made to collect all the necessary water samples. As the bottles arrived at the surface they were removed from the wires, the temperatures read, and the water they contained drawn off into glass bottles for estimation of their salt content, and the amount of oxygen and nutrient salts, such as phosphate, which they contained.

While we were working on the fore-deck zoologists on the after-deck would lower nets to various depths and haul them vertically to catch plankton and diatoms: microscopic plants which are present in great quantities in Antarctic

The *Discovery II* entering pack ice in the Ross Sea

seas. As the presence of nutrient salts is necessary for the growth and abundance of this plant life on which shrimps feed and in turn provide food for the Blue and Fin whales, these estimations were important. After these vertical 'hauls' on the fore- and after-decks were completed larger nets were lowered and towed for about an hour to get an indication of the horizontal distribution of the plankton. When this was finished the whole evening's effort would comprise a 'station'.

In fine weather stations took on an average two to three hours to complete, but in stormy weather they took much longer and we considered ourselves lucky if we were finished by midnight. There was one particularly cold and stormy night when everything possible went wrong, and we were on deck from eight o'clock in the evening until six o'clock the next morning before completing our job. We turned in for an hour in our bunks, then out for breakfast and work again.

Feeling more often than not like 'death warmed up', Deacon and I would get down to the day's task of analysing the samples collected the night before. Seated in a corner screened from the light by a curtain, he would stir together sea-water and a solution of silver nitrate to determine the sample's salinity. Meanwhile I would be juggling at the sink, adding strong hydrochloric acid from a burette to other water samples for the estimation of the oxygen content. The ship was usually rolling heavily while I was doing this and I would sometimes find myself either head-first in the sink or sailing backwards trying to balance a sample in mid-air and ending up with a bump against the bench behind me. Working solidly through the morning we were enlivened by occasional visits from people who encouraged us to 'stick at it'. At noon came the welcome break for lunch, when it was a case of the survival of the quickest.

After lunch we returned to the laboratory to grapple afresh with burette and tube. By adding chemicals to samples to produce colours in them, and then matching them against standard colours, we were able to determine the amount of nutrient salts they contained. By tea-time these colorimetric estimations were finished, and heaving a sigh of relief we relaxed and enjoyed a brief break in our labours. After tea we cleared up, and made preparations for the evening station and another batch of samples for the next day.

From our estimations a general picture of the direction and speed of currents could be obtained. For instance, the cold lower water from the Weddell Sea could be traced as far north as the Bay of Biscay, while tropical water could be shown as almost reaching the Antarctic Continent. Deacon evolved a method of calculating the speed of currents from the salinity, and he estimated that one body of water from the Antarctic took five years to travel from fifty degrees south to the Equator.

Each day, including Sunday, we worked in the laboratories analysing water samples and sorting and preserving the plankton caught overnight. The zoologists had an advantage; once having preserved their 'catch' they could leave the sorting indefinitely, while we in the chemical laboratory had to get the water samples analysed the same day, no matter what the weather. In stormy seas with the ship rolling violently, using and reading a burette accurately was a delicate operation, and to make colorimetric estimations with the light changing in colour

and intensity with every roll, and having to hang on with one hand while operating with the other, produced great physical and mental strain. Sometimes the air in the laboratory would suddenly become 'blue' as, in spite of my precautions, I would be thrown violently across the deck, and would pick myself up bruised and sometimes bleeding.

The atmosphere on board, except when in the tropics, was invariably cold and stuffy, and when in the fiercest of storms the massive storm-doors had to be fastened and all the hatches closed, it became so thick that one's head swelled and reeled. In addition, clouds of vapour from sea-water evaporating on the steam pipes produced an acrid stench which was particularly unpleasant. In a gale the cooks struggled manfully to prepare for us much-needed hot meals and they seldom failed. We envied them their warm surroundings—but with the galley half-filled with swirling sea-water that put out the fires, the saucepans spilling their contents on the hot stove and sending up clouds of steam and spurting boiling water in every direction, theirs was a hard and thankless task.

We had various cooks with varying results. One was Briggs's brother, a hearty and jolly fellow who enjoyed telling jokes against himself and kept everyone in fits of laughter. When we were coming north off Cape Horn on one occasion he decided for some obscure reason to have his head shaved. The result was diverting. As we were nearing the entrance to the Magellan Straits the stewards standing on the deck above the galley shouted 'Briggs, there's a ship!' Briggs dashed to the rail and leaned out to look at such a rare sight, and as he did so the stewards emptied a bucket of dish water on his bald head. He took it in good part, like the good fellow he was. One afternoon, having prepared dough for bread and put it in tins for baking, he was worried about smuts from the funnel getting on it, so to keep the dough clean he carefully covered the tins with an old sack which had been on the galley floor for months and was thick with fuel oil and tar.

He used to explain that whenever the captain showed visitors round the ship, he would say ' . . . and this is the galley', and then hurry the visitors past as quickly as possible.

Briggs could sleep the clock round. When I once complained to him of sleeplessness he was full of sympathy and said that it must be awful to suffer from 'insomania'. We had another amusing fellow on board named Kennedy who spoke with a distinct West Country accent. He had a persistent but unwitting habit of mispronouncing names. One of his jobs was to look after chemical and other scientific stores in the hold. To him sulphuric acid became 'sulfricated acid', hydrochloric acid became 'hydraulic acid', and formalin became 'formamint'. Once when he met a sailor who had had a violent fall on deck still walking about, he said that he thought he had 'discolated' his leg.

We had other humorists who were greatly appreciated, as a sense of humour was a valuable asset on board. For most of our shipmates a deep respect grew and lifelong friendships formed. Among the crew such fellows as Matheson, Ayres, Mackenzie and Briggs come readily to mind. Veteran seamen, sound, reliable and respected: finer fellows could not be met.

Matheson and Ayres were men of the sailing-ship days of wooden ships and iron men. They were great friends who hated fuss, and liked to go quietly and

efficiently about their jobs; in matters of seamanship none knew those jobs better than they.

Matheson spoke little and was most retiring, so that when one Christmas Day in Grytviken I found him sitting on a rock near the ship, singing and trying to beat time by clapping his hands, which somehow never met, I was not a little surprised and amused.

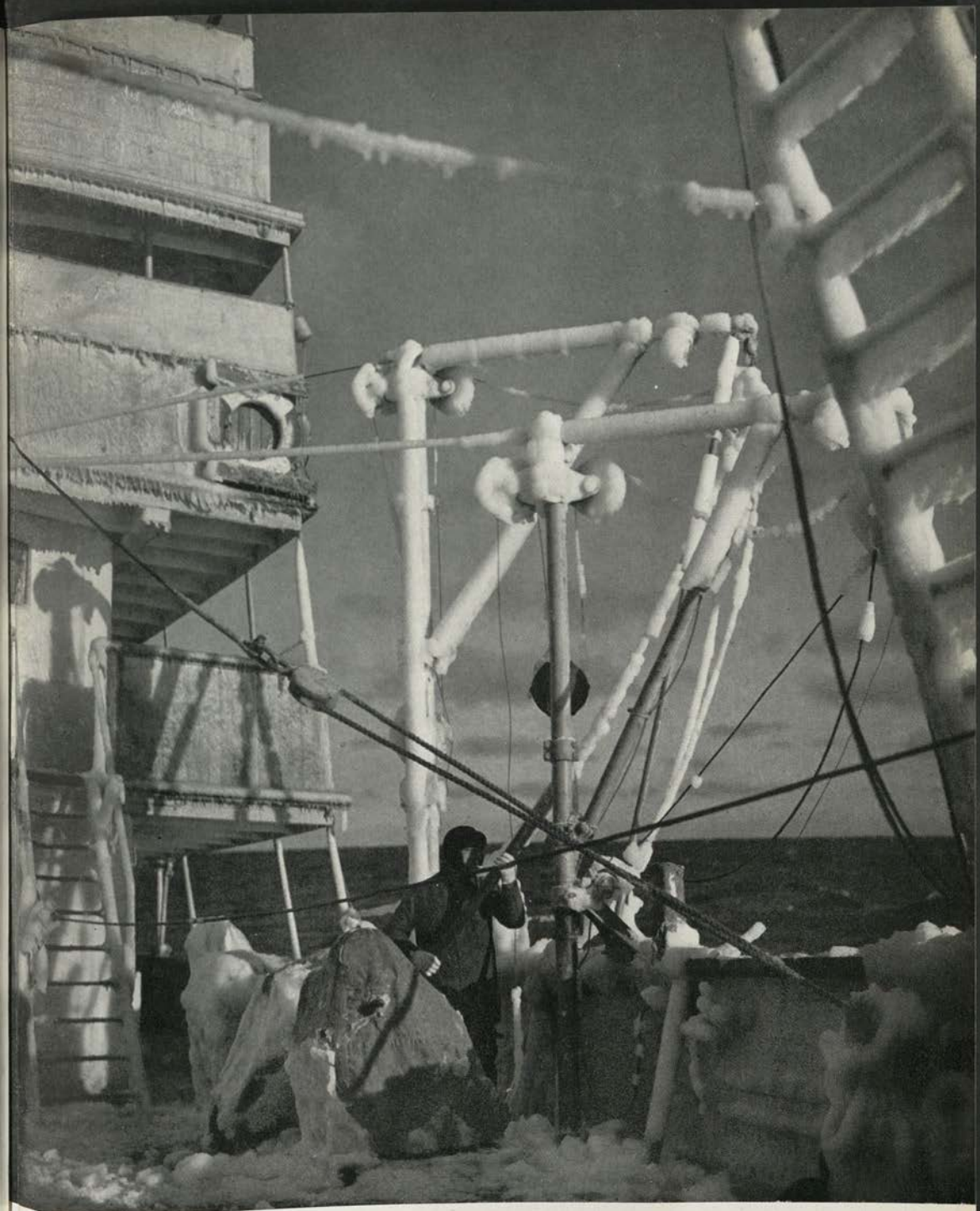
Ayres became the right-hand man of the scientific staff; conscientious and ever-willing, he performed a multitude of jobs. He kept the scientific equipment and chemicals of all kinds safely stowed in the hold and knew where everything was to be found. He was always mending the nets used for towing, and was always present on stations. His average working day was about sixteen hours, yet he was always helpful and cheerful. When walking along the deck during a station, one could hear him joking with his companions if the din of a raging storm permitted. Only if things went wrong did the tone of his voice change. He sometimes regaled us with numerous sea shanties which he sang at the top of his voice. He was a bachelor, wedded only to the sea.

Mackenzie, a Scot like Matheson, was a sailor of the more modern breed in that he had spent his time in steel ships. He was industrious and spent much of his off-duty time making coloured belts from twine. This started a craze in the ship which lasted for months. He was always helpful and reliable, was a pleasant companion on stations and seldom grumbled. He shared with me the task of cutting people's hair on board.

Before joining the *Discovery* on her first trip in 1925, Briggs had never been to sea. He immediately won the mate's approval when applying for a job on board by offering to climb the tall rigging to show his willingness. He had hands like plates of ham. Once a member of the ship's company he soon became the general favourite—a position he never relinquished during the several years he spent with the *Discovery* Investigations. He was absent from one or two commissions and during one such absence he got married and his wife later presented him with a son. He wrote to me in great glee about his offspring, taking a special pride in the remark of the doctor who attended the birth, who said that he had never seen a baby with such large hands before. He wrote urging me to 'have a boy dont have a girl it dont half make you feel fine'. He vowed he was finished with the sea, but back to the sea he drifted.

Then there was Suffield the bo'sun; and Jack Cook the donkeyman. The bo'sun, red-faced, with a big nose, a big voice, and a big heart, presided over the petty officers' mess aft and shared a cabin with Jack Cook, who was short, fair-skinned and round. They were good companions who, when not on duty, spent most of their time sleeping. Suffering as I did from insomnia, I envied them their capacity for sleeping. They were inseparables and only went ashore with great reluctance, even in such places as Port Stanley and Cape Town. Both were ex-Naval men and both helped on stations, as did practically every member of the ship's company.

The chief steward was a cockney with a decided sniff and a peculiar habit of closing his eyes when speaking to anyone. He loved to be the bearer of news, and any little bit of information he picked up from conversations in the ward-



The bo'sun clearing ice from the deck gear used to collect sea-water samples

room, he retailed to the other messes forward and aft with an air of great importance. It was amusing to see him hurriedly disappear from the ward-room, bursting with 'news'.

Most of the ship's company acquired nicknames. There were 'Lofties' and 'Shorties' to describe the tall and the short, and others descriptive either of character or appearance, such as 'Windy' or 'Sandy', or just 'Guts'. What I was called I never deemed it wise to enquire.

Living at close quarters for long periods in trying conditions, with long hours of work and no play, with the incessant rolling of the ship and little sleep, monotonous and often badly cooked food, stomach troubles and boredom, we tended to get badly on each other's nerves. Molehills became mountains and the mountains often had no real substance. Likes and dislikes grew out of all proportion, and one either liked a person or hated him intensely: there seemed to be no middle course. To wake up hearing a voice one disliked was ghastly. To hear it throughout the day was hell. Annoying habits made one want to scream, and one reached the stage of waiting for the expected to happen. Jokes often repeated ceased to be amusing and so well did we get to know one another that we knew what a person was going to say before he opened his mouth. One member of the ship's company had a habit of mumbling to himself, so that everyone within hearing stopped and listened in case it was he who was being addressed. This was very wearing. People who argued about each and every subject for the sake of arguing placed an added strain on the others, for arguments often became very long and heated. Shut up as we were with someone whom we disliked, and from whom sleep was no guarantee of escape, placed an ever-increasing strain on one's tolerance which often reached breaking point.

During my stay at the Marine Station we were joined by a new member of the scientific staff who took an instant dislike to me, which he never failed to show. The dislike became mutual and intense; so much so that each could hardly tolerate the other's presence. He disliked me so much that the very mention of my name was sufficient to send him into a rage, and my own feelings were such that if he approached me from behind and stopped while I was working in the laboratory, my muscles would become taut, my skin would tingle and the hair on my hands stand on end. Fortunately the Marine Station closed down at the end of that season.

Self-discipline and self-restraint had to be exercised at all times. Those who had little or none made life more difficult for their companions. We lived for the moment when we could part for ever from someone we disliked, but for others, we formed a deep and lifelong regard, although we sometimes quarrelled. To get ashore and see new faces, to hear fresh voices and have something to talk about was luxurious after the mental stagnation of the ship. How we enjoyed those brief excursions and how we talked of the happenings ashore when we were at sea once more. But by the end of a week there was little more to be told and at the end of a fortnight there was nothing left to say. At the end of a third week, mental stagnation had returned.

The principal amusements on board when work and weather permitted were card playing and reading. Because of the monotony and strain, most of the crew

sought comfort in heavy smoking. There was only a very moderate amount of drinking, except on a birthday or a similar festival, when a little celebration took place. Throughout my years in Antarctica I remained a teetotaller and non-smoker, but since I felt no urge to be otherwise I claim no merit for this.

Perhaps our greatest pleasure was food. Meals were the daily milestones to which we looked forward, for we were always hungry. Eating was nearly always an acrobatic feat. The 'fiddles' were on the tables from one month's end to another.

The fiddles were wooden frames about three inches deep which fitted on to the tables and divided them into small squares, one square per man. There were partitions for holding basins, jugs, condiments, and so on, and in the right-hand corner of each square was a piece of wood with a hole in it for holding a cup. Fiddles made feeding rather more awkward, but without them it would have been impossible to keep anything on the tables. A wet cloth put on the table was also helpful in preventing utensils from flying about. I got so much in the habit of placing things in the centre of a table that when ashore I automatically moved other people's cups from the edges of tables to prevent their rolling off.

One's primary task while eating was to keep some sort of balance. Hanging on to the table with one hand and balancing one's food with the other, one endeavoured to snatch a mouthful each time the ship came on an even keel, or waited until the rolling eased a little. The din of flying cutlery and crockery, added to the roar of the wind and waves, was terrific and maddening. If a plate was put on the table, the next moment it would be flying through the air and the person sitting opposite would have to dodge quickly to avoid being hurt. From the galley came the noise of pots spilling on the stove and of the cook swearing as he filled up the pots with more and more water. In stormy weather the proportion of water in our plates greatly exceeded that of food.

The water was not always all one could desire. At the beginning of a voyage it was all right, but as the trip progressed so its colour deepened to a red rust until it looked like cocoa.

The petty officers' mess aft was shaped like an egg with the fat end cut off. Along both sides were small but quite comfortable double cabins. Down the centre was a long table with benches fixed on each side. At the point of the 'egg' the propeller rattled and raced as the ship ploughed through head seas. Here too was a hatch through which on rare occasions fresh air was allowed to come, but—because of the large quantities of sea which it also allowed to enter—it was usually kept closed. The mess-room, if not always hot, was always stuffy. In one corner was a not-too-effective refrigerator in which meat and vegetables were hopefully kept. As they decomposed and the door was opened one got an overpowering waft of things to come.

After a night of rolling, accompanied by the unceasing din of rushing water overhead and of rattling cutlery in the little pantry, the mess-room would begin to show signs of life at about 7.30. With thick heads, blood-shot eyes and weary bodies due to the violent motion of the ship, the stuffy atmosphere, and lack of sleep, the bo'sun, the carpenter and their mess-mates would emerge from their cabins. At eight o'clock a mess-man brought down the breakfast from the galley,

and, half cold from its short journey, it would be eaten in silence. Breakfast usually consisted of porridge, bacon and tea.

The main meal was at noon, when, hungry from exercise and cold, the soup, meat and vegetables and a pudding—again all nearly cold—were quickly disposed of. Conversation was usually about the jobs of the day, the ship's progress, and the weather. After the meal the mess cleared, and the bunks were filled for a short rest before the resumption of work at one o'clock. The next meal was at five, and was a sort of high tea, consisting of cottage pie, sea pie or hot-pot. At this meal conversation was more animated and more argumentative. Long and heated arguments, embellished with an abundance of adjectives, took place over the most trivial things, and upon reference to a higher authority, both sides were usually proved wrong. Because of the previous night's bad sleep, and in anticipation of stations at eight and probably another restless night, bunks were immediately resorted to after the meal. One or two men would read quietly and a few would play cards. As the ship turned into the wind and stopped for a station, muffled figures emerged on deck to take their part in the proceedings which might last until the early hours of the morning.

In the fo'c'sle, life was much the same: the same food, the same trivial arguments—though perhaps more heavily weighted with adjectives—and the same amusements. But here conditions were not so comfortable. The limited space allotted to the crew was divided into two—one part for the firemen and the other for the sailors. Bunks lined the sides in both messes. Fixed tables and benches took up most of the remaining cramped space and poor lighting and ventilation were added discomforts. The movement of the ship when she plunged heavily was most felt in the fo'c'sle and produced a sickening feeling as she rose, hesitated, then fell with each oncoming wave. The noise and vibration caused by each impact with heavy head seas was also most noticeable here as was the bumping and grinding through pack ice.

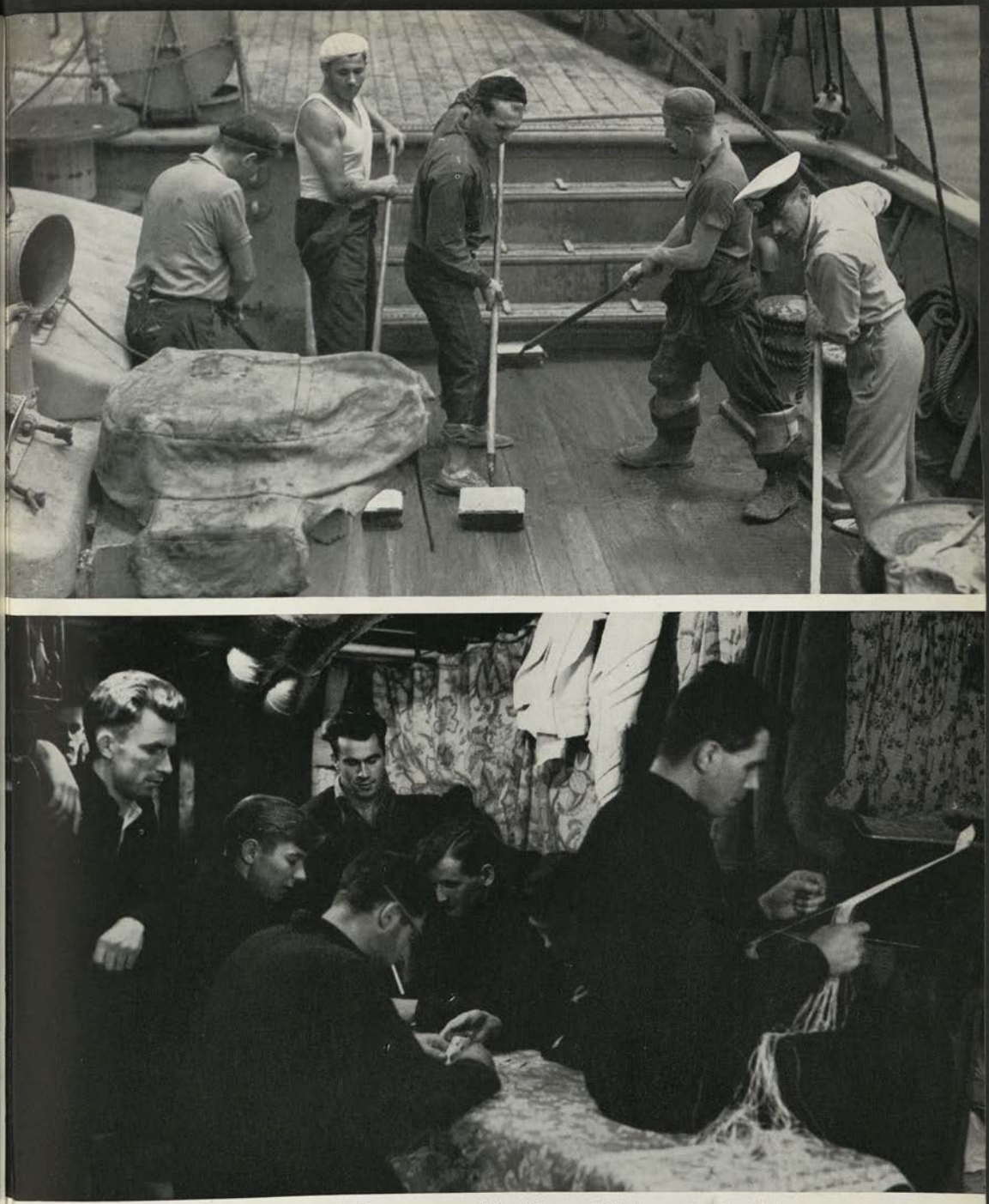
The crew's hours of work were somewhat different from ours. They worked in watches of four hours on and four hours off, with Sundays free, except for the man at the wheel, the lookout and the firemen.

Food from the galley, after having run the gauntlet of flying spray, snow and wind, always arrived nearly cold. When an enormous steel door below decks leading from the officers' quarters to the fo'c'sle was removed, there was some improvement, but it allowed the clatter of enamel plates, the noise of argument and the blare of jazz music from a screeching gramophone to be heard over most of the ship.

Mugs of tea resembling varnish were made at all hours and were welcome highlights in the daily round of monotony. But the great event of the week was on Saturday evening when each man received a tot of rum. This was usually mixed with hot water and sugar, and drunk either before going on deck to do stations to help keep out the cold, or after stations to warm up before going to bed.

Almost every evening and on Sunday afternoons a blanket was spread over the table and card games were played with cigarettes for stakes.

Amidships and immediately above the laboratories was the ward-room where the captain, deck and engineer officers and scientific staff fed and amused



Above: Members of the ship's company of the *Discovery II* holy-stoning the deck
Below: Sunday afternoon in the fo'c'sle

themselves. It was roughly square in shape and had two separate tables running fore and aft, with swivel chairs screwed to the deck. Down one side of the room was a settee and in one corner a piano which was always called upon to do its duty when a birthday or other celebration took place. In another corner was a small pantry from which the steward and his assistants would emerge with such gastronomic achievements as the food supply, the weather and the cook's capabilities permitted.

Food in the ward-room was a good deal better than in the other messes. There was a greater variety, and it was better cooked and better served.

The day started at seven o'clock when the steward brought a cup of alleged tea. It was at least wet and eased one's parched throat, and, with luck, it was also warm. Then came the scramble in the bathroom, where swirling water washed over one's feet and a slippery floor and the rolling ship threatened to send one flying into the bath or against the hard and unsympathetic bulkhead.

Breakfast was at eight. One by one people arrived at the table, and after a brief good morning, subsided into silence to tackle the porridge and bacon. Occasional references to the weather experienced during the night, and allusions to the ship's behaviour and parentage punctuated the meal. When the officer of the watch entered from the bridge, muffled up, cold and hungry, he was plied with questions of the distance we had travelled during his watch and our approximate position. Breakfast was not a meal over which we lingered and when it was finished we dispersed to our separate tasks.

At noon, when eight bells sounded, there was a hurried movement to the ward-room for the first sitting for lunch. By now the weariness of breakfast had to some extent worn off and our spirits had revived, so lunch-time was an opportunity for mental relaxation and the exercise of one's wit. Wordy duels took place in which one parried and thrust with good-natured repartee, but sometimes duels were fought in earnest and quarter was neither asked nor given. This did not often occur and usually the midday meal was a pleasant event and an occasion for the companionship we inwardly craved. Although we were never far from one another we nevertheless felt lonely and longed for companionship and a chance to talk. But to find something new and interesting to say was very hard.

The meal itself was usually good. Except in the worst weather, there was usually soup, meat and vegetables and a sweet, and with our voracious appetites we did it ample justice. In rough weather, when the *Discovery II* was wallowing in heavy seas, eating was exhausting, due to the strength and effort which had to be expended in maintaining one's balance and the deftness of hand required to get the food into one's mouth.

When the meal was over, we spread ourselves on the settee and perused ancient periodicals while the second sitting took place. The second sitting was presided over by the 'Old Man' and never reached the heights of animation or argumentativeness of the first, although we threw in odd words from the other side of the ward-room to help the conversation along. After lunch the scientific staff returned to the laboratories to continue analysing water samples and sorting plankton.

Above: Taking the anchor aboard in the Ross Sea

Below: Two of the crew are left behind, after having helped to free the ship

At three-thirty there was a welcome interval for tea—guaranteed, if not to cheer, at least to line any stomach. In appearance it resembled coffee. It was accompanied by a piece of bread and butter or a biscuit. Andrew, the engineer, revived by an afternoon nap, now unfailingly provided the humour; then as eight bells (four o'clock) struck, he dashed off to the engine room. His place was taken by the officers coming off watch. They sat at the otherwise deserted table in solitary glory.

As the greater part of my day's work was by this time completed, I used to linger awhile looking at the old magazines and papers lying about the room. From this time until seven, when we had dinner, there was a quiet period when most people disappeared to their cabins. I had the hydrological laboratory to myself during this time and would wash and label bottles and generally make ready for the night's station at eight.

Dinner was the highlight of the day. At a quarter to seven all officers not on duty and the scientific staff began to gather in the ward-room each with a glass of beer or gin. It was a rule that everyone wore a tie and was on time. This was the best meal of the day and consisted of soup, fish (sometimes), meat and vegetables and a sweet followed by coffee. At this meal, usually a jolly one, discussions and arguments took place which sometimes grew heated. One curbing factor in these arguments was the fact that anyone swearing was 'gonged' by the captain and had to buy drinks all round. This usually broke the tension and brought laughter in its place. Andrew often came under the hammer and having been freed by the gong would, to everybody's amusement, then give full vent to his feelings. Another curbing factor was the knowledge that we would be doing a station at eight o'clock. Any heated feelings remaining would then be quickly cooled off by the full blast of a snowstorm or blizzard. It was also amusing to hear above the din of an argument, the steward and cook exchanging sentiments when something or other went wrong. The cook usually held his own. This leisurely meal usually ended at about a quarter to eight, enabling us to go to our cabins and get into our thick clothes ready for the station.

On Saturday nights two toasts in port wine were drunk, as is the custom in the Royal Navy; first 'The King' and then to 'Sweethearts and Wives'. As I was teetotal, I had to offer my good wishes in grapefruit squash or water.

Birthdays were great occasions, when it was the practice for him whose birthday it was to supply drinks for the dinner. A bigger and more tasty meal was provided to mark the occasion. It sometimes happened that one or more members of the ward-room became 'oiled' and a loud and raucous sing-song developed. Unless the weather was too rough, some of us would most reluctantly break ourselves from the party for a station, where, above the roar of the waves, the sound of laughter would reach us and bring a smile to our lips.

Above: Dawn in the Weddell Sea

Below: The ship pushing south through open leads

CHAPTER VIII

THE WEDDELL SEA

On my first voyage in the *Discovery II* after having called at Cape Verde Islands, we made for the Falkland Islands, doing stations *en route*. Off the coast of South America, we ran into some rough weather and one afternoon we were treated to a rare sight. A school of Pilot whales suddenly appeared alongside the ship. We had a following sea and the waves were rather steep. From out of the wall of water their blunt heads would appear, then they would swivel on their middles, slide down the wave and disappear into the trough. Doubling on their tracks they repeated the performance several times before finally disappearing.

We arrived at Port Stanley in November 1931, six weeks after leaving England, and stayed a week renewing old acquaintances. The 'kelpers' as they call themselves, are kind and hospitable people and made us very welcome. During our stay a party of us set off in the Government launch to an island where we hoped to get photographs of sea-lions. On the island we wandered through tussock seven feet high in which, had one been alone, one might easily have been lost. The knowledge that we might at any moment run into a resting sea-lion did not add to our peace of mind, for they are pugnacious animals and attack quite readily. However, we did not find any, so we visited a Rocky penguin rookery where we found Blue-eyed shags nesting among the penguins.

A few months later the Falkland Islands Centenary occurred, and a whole week was given to sports and dancing to celebrate the founding of the Colony. Farmers and shepherds came from all parts of the islands to compete in horse races and sheep-dog trials. Watching the trials, everybody agreed that the dogs seemed unusually unintelligent and below form. At last one young lady standing beside me asked, 'How can the dogs be expected to understand, when none of the shepherds is swearing?'

After we had left the Falklands, we passed through the Magellan Straits, and anchored one night in Fortescue Bay. Most of us went ashore and hardly had we left the ship when we were enveloped in a snow squall. On shore we found the trees wind-stunted and growing at an angle of forty-five degrees. The country was densely wooded, and dead trees and branches covered the earth to a depth of two or three feet. These were wet and slimy and it was difficult to maintain one's balance, especially when carrying a big camera. I managed to climb a hill from which I got a splendid view of the mountains and the *Discovery II* in fan-like beams of sunshine. Looking round the wild and foodless country with its boundless difficulties of travel, one could not but marvel at the hardihood of the Patagonian Indians who lived there practically naked, and were constantly faced with starvation—so much so that if a dead whale or seal was found they

Pilot whales off the South American coast

would bury it for recovery during the winter. Darwin, in his *The Voyage of the 'Beagle'*, says he saw a Patagonian woman, with a child suckling at the breast, stand for three hours in a snowstorm watching the ship. Both were naked. Cannibalism was rife, and to be wrecked on the inhospitable shores of Patagonia must have been a sailor's nightmare. The Indians were once fairly numerous and roved the countryside, but now their numbers are greatly depleted. Some families lived in canoes at the bottom of which a small charcoal fire was kept burning and round which children, dirty and bedraggled, huddled as best they could.

We found an old camping site with the remains of a dome-shaped hut made of twigs. Later, in another part of the Magellan Straits, I was able to visit a midden and scraping in the earth found knives, arrow heads, hammers, and other instruments made of stone which had been in use until a comparatively short time ago.

With Patagonia behind us, we passed Cape Horn.

A few days later I got my first real taste of pack ice, a sample of what was to come, and for some days we passed through various ice formations. There was old, heavy pack, loose pack and pancake ice upon all of which we saw many Crab-eater seals. The noise of the ice grinding on the sides of the ship was terrific, but to me it was sweet music. We passed hundreds of icebergs, long tabular bergs mostly, many of them worn by the sea into fantastic shapes. During my years of wandering in South Polar seas, I must have seen many thousands of bergs, but they never failed to attract me. Sparkling in the sunlight they were most beautiful, but looming up through fog or snow with waves dashing against their sides they were ominous and awe-inspiring. The knowledge that about four-fifths of their bulk stretched deep under water added to my awe. Some of the bergs had large numbers of penguins resting on them, and on one large chunk of ice which was see-sawing in the rough sea we saw a number of Ring penguins having great fun. Playing follow-my-leader, they repeatedly dived off the heaving ice into the sea, then they turned round and leapt back on to the ice again, squawking with great glee.

During some stormy weather a wire on one of our water-sample collecting machines broke and about three thousand metres of wire was lost. This necessitated our calling at Deception Island to fix a new one. Deception Island, one of the South Shetland group situated about six hundred miles south of Cape Horn, is a large volcanic island with a huge crater. One side of the crater has disappeared and has allowed the sea to enter. Thus the island has a fine harbour, shaped like a horse-shoe with the open ends almost nipped together. From the open sea the island gives no impression of possessing a large harbour and from this deceptive appearance presumably derives its name. There is still some volcanic activity, for occasionally small quakes occur and there are several hot springs. All round the beach, hot water is found two or three inches below the surface of the sand. Deception is heavily glaciated; some of the glaciers are black with volcanic ash and at first one gets the impression of walking on rock. At one time the Norwegian whaling factory ships made much use of the harbour where they rendered down the whales brought in by their catchers. A small

whaling station was built on land. At the time of our arrival the harbour was half full of thick sea ice. The land station was derelict and deserted and there was no sign of anyone having been there for a long time.

When we arrived to change our wire the weather was fine with a strong wind blowing. While we were at the island a small party set off over the mountains to visit a large penguin rookery. Later in the day a blizzard sprang up and we on board became anxious for the party's safety. The third engineer and I set off on skis to look for them. The force of the wind was such that we had to lean back on it to prevent our being blown over. When we turned to face the wind the fine snow hit us like sand blast. On reaching the top of the mountain we had to crouch low and finally lay on our stomachs to look over the other side. We could see nothing of the others so we turned down the mountain again and faced the full force of the wind. When nearly at the bottom we saw three figures loom up out of the flying snow. It was the party returning half frozen and caked with snow. One of them—the ship's doctor—was frost-bitten and had to receive attention on the mountainside. While waiting on the shore to get over the ice back to the ship, I found all the middle front of my clothes was a solid mass of ice. I could not account for this and became anxious lest I too was frost-bitten. On board I quickly removed my clothes and was greatly relieved to find no signs of frost-bite. I found the powdery snow had entered a small slit in my wind-proof suit, and melted with the warmth of my body, and had then frozen solid.

At South Georgia, round which we worked doing stations night and day, we saw hundreds of grounded icebergs. On rare occasions a black-streaked morainic berg would appear to give a little variety. These black streaks consisted of mud, rock and stones which had been carried down by the glaciers from which the bergs had originated. Sometimes the black streaks would be as sharply defined as if drawn with a ruler, others would be more irregular, while occasionally the whole iceberg would be black. These black icebergs were probably responsible for the reports of 'rocks' being found which were never subsequently verified. On the *Discovery II* we often chased these non-existent rocks that had been reported seen. Glaciers similar to the ash-laden ones of Deception Island might easily have been the birthplace of such 'rocks'. The Nordenskjöld Glacier at South Georgia had two or three long black streaks of mud and stones stretching from the mountains inland down to the glacier face.

From South Georgia we made our way to the Sandwich Islands, passing many fine icebergs. One was like a huge dry-dock. We passed close to Visokoi Island which was volcanic and completely covered with thick glacier ice except at the top, from which steam and smoke poured forth. A bitterly cold wind made working the cameras difficult. Soon after this the ship was turned south and we quickly reached the pack ice.

For some days the ice remained fairly open and we made good progress. As we pushed our way south through the open leads, the floes bumped and scraped the ship's side with a terrific clattering and banging. Whereas at sea I could not sleep for the heavy rolling, in the pack I could not sleep for the noise. My 'insomania' did help me once, however. Practically the whole time we had been in the pack it had been dull and foggy, and although I was always wandering

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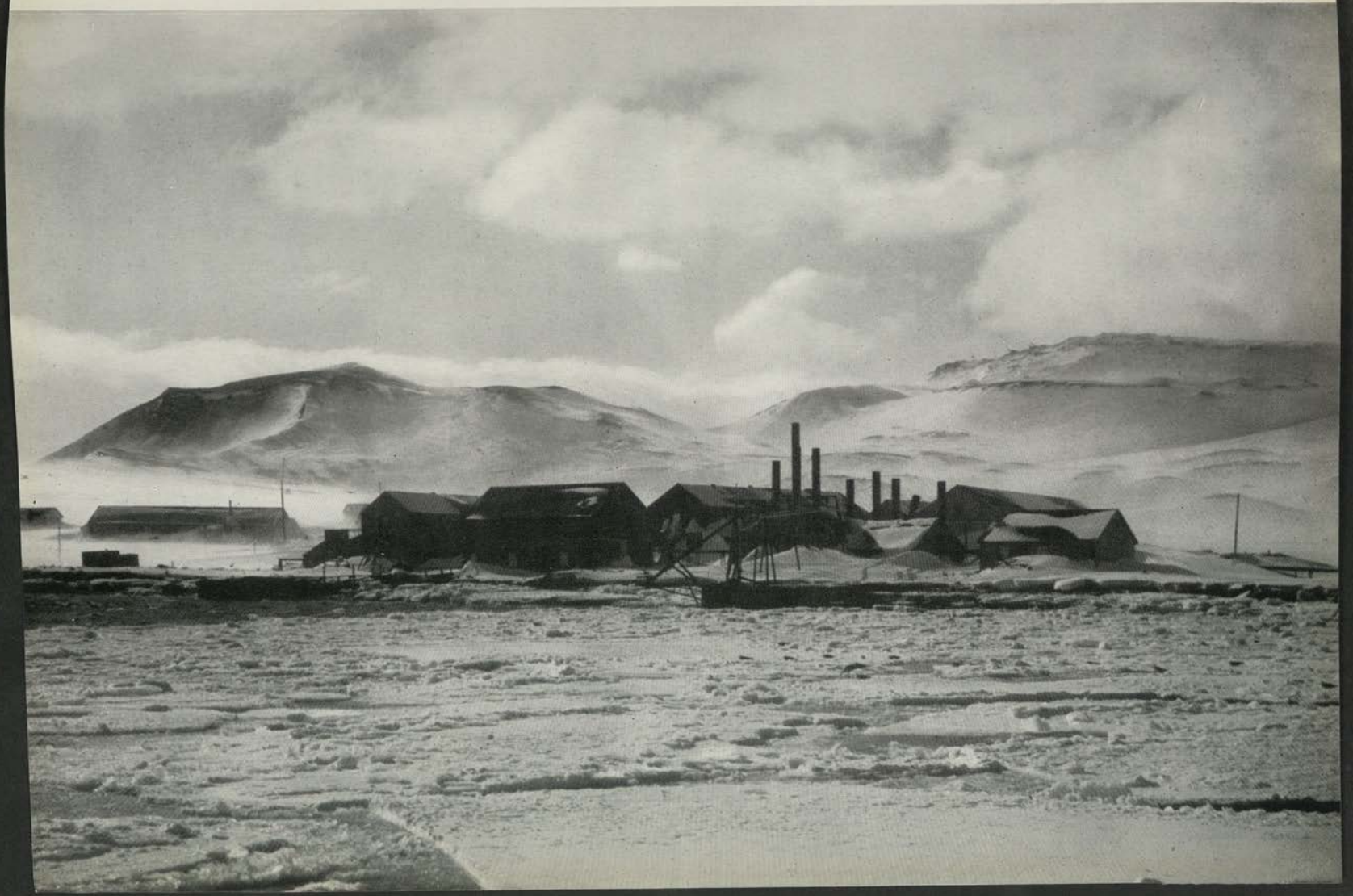
about with my cameras little of photographic value came my way. As I lay awake in my bunk about three o'clock one morning I saw a glint of sunlight coming through a skylight. I grabbed my camera and dashed up in my pyjamas on to the bridge. My appearance caused some amusement, but I got a good picture of the dawn. The pack no longer looked grey and forbidding but exquisitely beautiful. Having taken my photograph I dashed back even more hurriedly to my cabin and dressed, but by the time I was back on deck the sun had disappeared. Disappointed, I returned to my bunk and tried to thaw out.

A number of whales were seen playing in the open leads, and once a Killer whale came alongside for a few moments, but disappeared before I could get a photograph. Crab-eater seals were frequently seen resting on the floes. They took little or no interest in us except when the ship bumped into the floe on which they were sleeping. This usually shook them out of their lethargy and sent them scurrying to the edge of the floe where they would slide out of sight inder the ice. Penguins, on the other hand, were greatly interested in us. Little black dots would appear on the ice and gradually converge upon us. These were invariably Adelie penguins which, coming alongside, would regard us intently, and when we squawked at them they would squawk in reply. We seldom saw Emperor penguins and when we did they seemed shy and kept a good distance away. One followed the ship for a while and amused itself jumping on to the floes sometimes ten or twelve feet above the water and then diving back again.

As we proceeded farther south the floes became bigger and more difficult to negotiate. When they could not be turned or pushed aside, the ship with her engines going full ahead, was charged at the ice. The impact was terrific and the ship quivered from stem to stern, rose on the floe and slowly slid back again. Usually the impact and the weight of the ship were sufficient to send a crack running across the floe and split it in two, and the ship could then be nosed through the gap. If the ice did not crack we would go astern and repeat the operation until a split was made. The ice thickness varied. At times it was ten to twelve feet above the water which, added to the amount under the water, made it from forty to fifty feet thick. No attempt was made to charge into this. On the poop, parties were organized to assist the navigation of the ship and to prevent floes from getting right under the stern and damaging the rudder and propeller. This we did by pushing as hard as we could against the floes with long poles. This hard and very cold work went on night and day. There was really no night as it was daylight the whole of the twenty-four hours.

When we reached seventy degrees south our progress was brought to a stop. Before us was an impenetrable pack—thick, heavy, hummocky and cemented into one vast, solid mass. No ship could possibly have penetrated it. This was a great blow to us as we had hoped to reach the Antarctic Continent. There was a small patch of water at this point, so we stopped long enough to do stations before turning westwards. It was bitterly cold and the wind from the south cut right through our clothes. Looking for an opening to the south we steamed along this frozen mass with its pressure ridges and spires which gave the impression of a dead and frozen city. Ice conditions which varied greatly forced us to take a north-westerly course. We passed through large areas where only a short time previously

Blizzard blowing over the derelict whaling station in Deception Harbour, South Shetlands



there must have been open water but which were now covered with ice a foot thick. The vast unbroken flatness made it difficult to realize that we were really at sea.

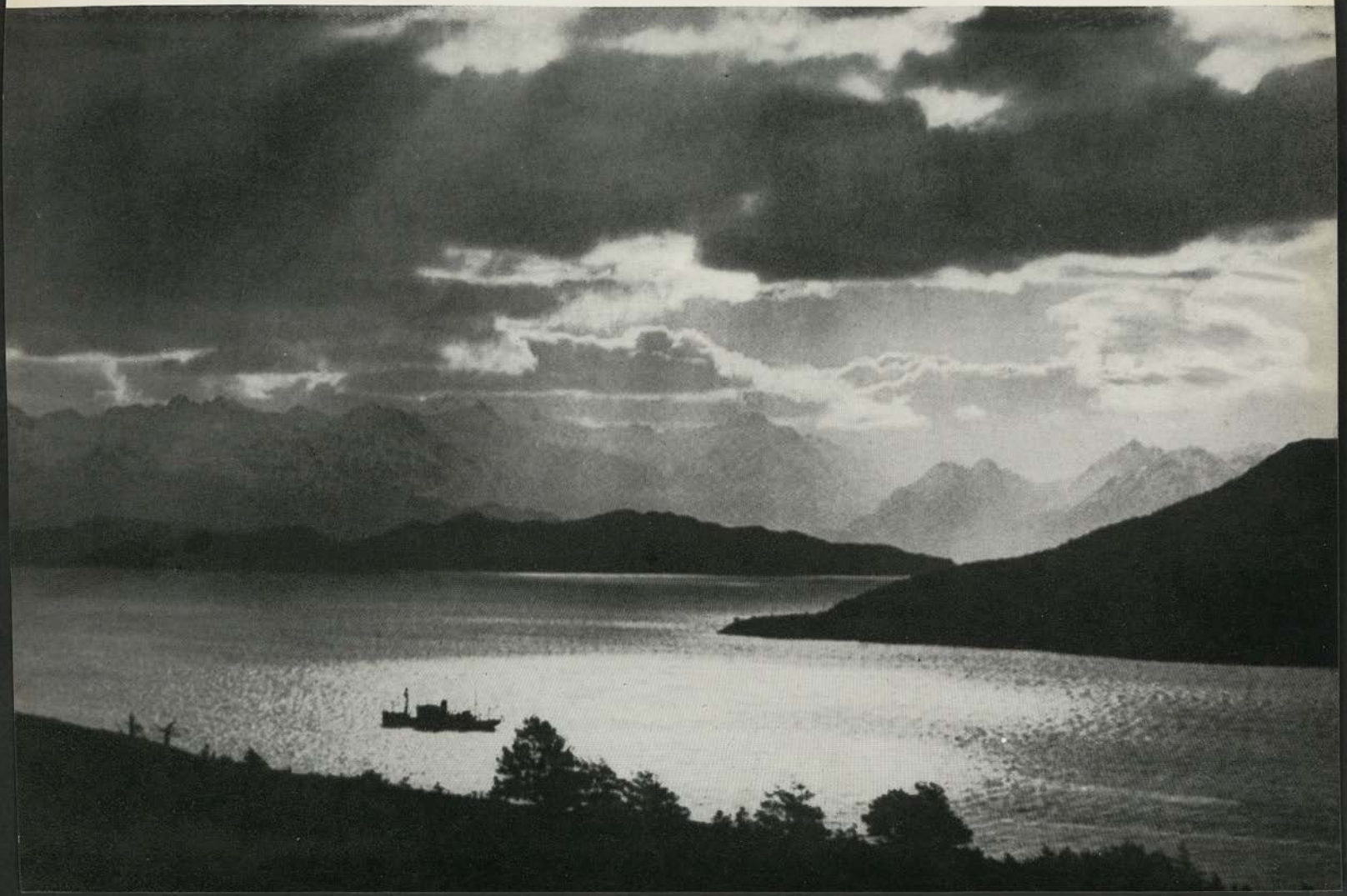
When the *Discovery II* got stuck in the heavy ice members of the ship's company would climb out on to it and stretch their legs. One morning we were jammed fast in the ice and no efforts could move the ship. The pressure of the ice increased, and we saw a tabular berg moved by the sea currents coming towards us and pushing the pack in front of it. The wind was blowing the pack in the opposite direction so that we were caught in opposing forces. As we could do nothing but wait we stood on deck and watched the oncoming iceberg. At last the iceberg was right on us and then to our great relief we watched it pass about a hundred yards astern. The pressure immediately eased and we were soon under way again.

Shortly afterwards we got stuck again. The anchors were put out on the ice, were hauled upon, and the engines were put full astern. Within a few minutes the ship suddenly freed herself, but in going astern bumped into a floe and twisted her rudder and bent the propeller. An examination was made, but in the heavy ice, which was about thirty to forty feet thick, no repairs could be attempted. So we pushed on, twisting and bumping, now ahead, now astern. On the poop all available hands—scientists, cooks, ship's officers and stewards—were kept busy poling off the floes. Despite all efforts the rudder and propeller received several more bumps. To help the steering, sails were set fore and aft. We reached a patch of open water and as the pack was opening up a bit the engines were stopped and the engineers set about the repairs. We spent the afternoon keeping the ship from drifting on to the ten-feet-thick floes with our poles. We were cold and miserable and the only bright spot in the whole afternoon was the appearance of a few Adelie penguins that jumped out of the water and landed on their feet with perfect precision and balance. They then tobogganed on their stomachs for some distance and turned to survey us with amazement.

Towards evening the floes began to close again. All hands were called on deck to try to move the ship into a slightly larger patch of water at our stern. We heaved and heaved but the ship did not move and things looked black indeed. At last she began to move slightly and, greatly cheered, we pushed harder. Meanwhile the engineers worked frantically but could not get the repairs to the steering gear finished for another hour. A great sigh of relief went up when at last the ship's bows slipped out of the narrowing channel, now only a few feet wide. A little later the floes came grinding together, and an hour later we were under way once more.

The next morning a blizzard was blowing and in trying to break through a large floe there was a loud bang and everyone rushed to the ship's side expecting to see plates torn off. Nothing could be seen, however, but on examination it was found that a hole had been torn in the ship's side and a fuel tank containing seventy tons of oil had been holed. This left us with only one tank containing forty tons of oil. Plates were also bent, rivets were loose and the steering gear was once more out of control. It was bitterly cold work putting out an ice anchor and when this was done further repairs were immediately begun.

Evening in the Magellan Straits



The following twenty-four hours were anxious ones for us all. Had the hole occurred a few feet farther forward the holds would have been flooded, and the ship would certainly have been lost.

In the afternoon the wind dropped a little and those of the ship's company not required on repairs played football or went ski-ing on the sea ice. It was snowing and visibility was poor, but we enjoyed the exercise. The floe stretched a great distance and it was amusing to reflect that there was sea to a depth of two or three miles under our feet. After having returned from our football on the ice we were all very quiet, and sat in small groups discussing our chances. The possibility of having to trek 250 miles over the pack ice to the open sea, hauling a lifeboat or two, was most real and unpleasant. That evening, for want of something to do, I played some gramophone records in my cabin. Among them was one of Gigli singing Tosti's *Good-bye*. Looking back I do not think this could have been either popular or appropriate.

We got under way at 2 a.m. Every available man was on the poop pushing on the floes with poles. A strong cold wind was blowing from the south which made the steering of the ship very difficult. The ice was thirty to forty feet thick. It was a most worrying time for the captain—Commander W. M. Carey, R.N.—who frequently came aft insufficiently clothed and apparently oblivious of the cold to see how we were faring. Our experiences of the last few weeks had increased our admiration and respect for the skill and determination of all the ship's officers upon whom had fallen the greatest strain.

We made fairly good progress until 4 p.m. that day when the rudder was twisted again. The ship was stopped and an ice anchor put out, but after a while in the strong wind this carried away. The repairs were finished without further incident, however, and we were moving forward once more.

I was up at three the next morning—as I had been most mornings since entering the pack—looking for camera subjects, but I found the sky dull and cloudy. I was bitterly disappointed, for during the whole time in the pack we had had only one very short period of sunshine. At midnight the same day the ice began to thin out, and at six the next morning, when we were again in open water, the ship was stopped for a station. During the day the ship was found to be leaking badly. Plates were displaced and stanchions bent. Passing through a final belt of loose but very heavy pack ice we steamed straight for South Georgia, meeting stormy weather as we approached the island. Here temporary repairs were effected at Salversen's Whaling Station in Leith Harbour.

A few weeks later we were heading for Simonstown, South Africa. In dry-dock there we saw the full extent of the damage. Besides the hole in the ship's side the propeller was twisted and was a sorry sight. The rudder post, a solid steel structure about one foot in diameter, was also twisted and bent. The thick steel plates on the ship's side were corrugated, and the ribs of the ship looked very like the ribs of a starving man. The steel rivets fastening the plates were worn flat and were loose, and through these the sea-water oozed. Only then did we realize how very fortunate we were to have survived.

CHAPTER IX

TWO CIRCUMPOLAR CRUISES

DURING the eight years I was on the *Discovery II* we did two circumpolar cruises, one in winter and the other in summer. The winter cruise was probably the most gruelling of my Antarctic experiences.

Six weeks after our arrival in Simonstown in 1932, we were again ready for sea. Very extensive repairs had been undertaken and completed, and a new propeller and other replacements made. During this time we had lived ashore and, greatly benefited from the good food and change of company, we returned on board fit and well. In April we left Simonstown and began our lonely journey south.

Almost as soon as we turned south we ran into rough weather. The temperatures of the sea and air fell rapidly and the days shortened. Bad weather delayed our progress and stations lasted anything from four to six hours and even longer. Owing to the long hours of darkness, the distance to be covered, and the anticipated rough weather, it was decided that we should do stations at midnight, instead of at eight o'clock in the evening and so get the benefit of what moonlight there was.

Starting stations at midnight placed a great strain on us all. After our evening meal we went to bed and tried to get some sleep, but as I was troubled with insomnia sleep was denied me, and I was still awake when the sailor on watch came to arouse us just before midnight. Struggling out on the heaving deck in the inky blackness, with waves roaring by and the wind howling through the rigging, we dragged our water-sample bottles and gear on to the deck. Then with heads down, gasping for breath, and hanging on to the life-lines to steady ourselves against the heavy rolling and the green seas which swept all too frequently over the ship's rail, the struggle for water samples began. Under these conditions, it was impossible to keep the ship steady. She often drifted and wires became tangled and so added to our difficulties. Tired, cold, wet and miserable, we seldom spoke on these stations, but thawed out a little when, with the station half finished, we made cocoa, which we gulped down piping hot, and ate a sandwich. Snow added to our discomfort, and with the flying spray soaked us through and stung our hands and faces. At five or six in the morning we crawled into our bunks, and I spreadeagled myself on my stomach against the rolling and endeavoured to get some sleep. I seldom managed to do this and at eight o'clock, feeling utterly weary and with a splitting headache and blood-shot eyes, I dragged myself up for breakfast.

At nine I was in the laboratory preparing my portion of the water samples for analysis. Deacon, who was in charge of the hydrological side on this cruise, was a fine fellow to work with. A good worker, patient, helpful and kind, it was

impossible not to like and respect him. We got on well together and worked Sunday and weekday alike in all weathers on our quantitative analyses. The four zoologists, headed by the senior scientific officer, Dilwyn John, took turns to help us collect the water samples. The other scientists were Marr, Rayner and Ommaney.

Dilwyn John was a Welshman, quiet, bespectacled and shy. He was a good leader who knew what he wanted done and achieved it without friction or fuss. His quiet self-assurance commanded respect, while his deep, suppressed laughter endeared him to us all. On stormy nights when things went wrong on station he was ever helpful, taking his full share in all that was doing. He hated the limelight and when we arrived in harbour liked to slip quietly and unobtrusively away from the crowds.

Deacon, who was Dilwyn John's special friend, had been a schoolmaster, but undoubtedly the field of research was the one for which his great talents were best suited. Modest in the extreme, he was generous in giving praise to others. He coined innocuous little words to express annoyance and by these we came to know him. One of these mild expletives was 'Tadgers'. His use of it never failed to raise a smile; and a smile was worth any amount of gold. I got to know him well and in my storehouse of memories he has a compact, watertight compartment.

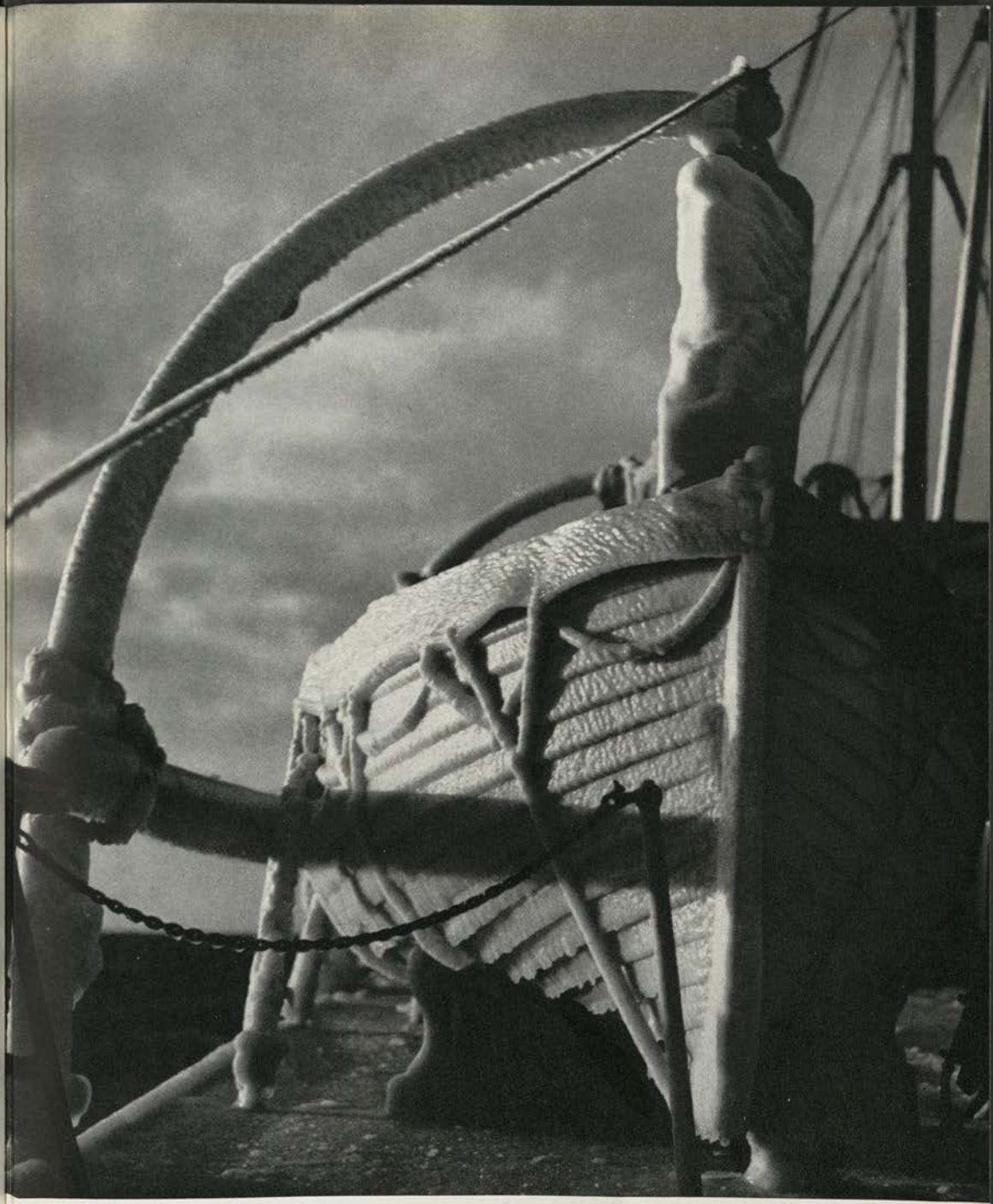
Marr, best known as 'Scout' Marr, was an outdoor man who spent most of his waking hours wandering about the deck in a duffle coat attending first to this bit of scientific gear and then to that. In the little workshop on deck he would spend hours tinkering with the reversing bottles or in repairing the releasing gear which was used in closing the nets after they had been towed. He had little liking for the laboratory work and was happiest when on the poop towing nets or examining his catch.

Rayner, a quiet and taciturn man, was also a good worker. He seldom smiled but there were times when his amusement became abundant and boisterous. On stations he worked the water bottles on the fo'c'sle head with speed and efficiency. The way he made that machine rattle when heaving in the closed bottles was music to our tired and snow-clogged ears, for every minute saved brought us a minute nearer to our bunks.

Ommaney, tall and thin, preferred the laboratory to the deck, for no matter how thickly he was wrapped up, he always felt the cold. When on deck during a station he usually looked pinched and thoroughly miserable. He had a witty tongue which was sometimes steeped in acid. With both Rayner and Ommaney I had worked on the plan at Grytviken.

We passed our first iceberg about five days out of Simonstown. It was early evening and the sky was filled with heavy black clouds. Out of the blackness a small patch of crimson appeared on the horizon. Silhouetted against it was a weather-worn iceberg. Angry waves completed the stormy picture. Fascinated, I hung on to the swinging rigging and watched the berg until the cold forced me to seek a warmer spot.

We met pack ice when forty miles from Enderby Land which we had hoped to reach. We found a patch of open water in the ice and did a station. The deck



The ship's lifeboat coated with frozen spray

was a mass of ice, our gear was frozen, and it was snowing most of the four hours we were on deck. When the snow stopped, the moon shone through a gap in the clouds and bathed the ice in pale light, which glittered white like so many diamonds. But the intense cold bit into hands, feet and cheeks while the wind seemed to tear the skin from our faces. The sea-water froze as we poured it into the bottles. Fearing that we might get frozen in, we turned to the open water where the ship was hove to because of the storm, and I spent another sleepless night holding myself in my bunk.

We worked our way eastwards along the edge of the pack, occasionally entering it to do a station. There was no real daylight and snow further darkened the midday twilight. This, added to the incessant rolling, made our work very difficult. The laboratory with ice coating the insides of the windows, was like a refrigerator, and frequently our glass apparatus cracked with the cold. The strain of doing stations at midnight increased, followed as it was by the daily battle with the samples, and became so great that it had eventually to be abandoned. By the time we reached Fremantle we were utterly worn out. After a few days, however, we were heading south once more.

The same stormy weather was met and in a few days the ship was thickly coated with ice. It was extremely dangerous moving about on deck and one did so with great caution, for it was understood that there was little or no hope of being saved if washed overboard. The task of collecting the water sample at eight o'clock each morning on the poop was particularly unpleasant. In the darkness (the ship had all lights covered the better to watch for icebergs) no one would see whether you were washed overboard or not. With the icy deck half-filled with swirling water, one crouched and grasped anything to hand for safety. On the slippery poop, we were shot helplessly from side to side. In a head sea the poop was high in the air one moment with the propeller racing, the next it was sunk deep in a trough. I was always very glad when the sample was collected and I was back in the warmth and safety of the mess-room.

As we neared the South Magnetic Pole, displays of aurora became more frequent. The tedium of stations was forgotten when these curtains, pillars and arcs of green light were moving in the sky, and we felt reluctant even to go to bed. Out of the blackness these lights would appear, continually changing form. One night spirals of yellow, green and red light revolved round and round, then suddenly disappeared. During one station, when heavy black clouds filled the sky, a small gap appeared and the light of the moon shone on a small area of angry white-capped waves. It was an awesome scene, but when a waving curtain of green light appeared, then it was fearful indeed. About two o'clock one morning I had just managed to doze off, when a sailor shook me and asked if I wanted to photograph a good display of aurora. I did not. Nor was it possible with the material and apparatus then available. I thanked him, however, and in order not to dampen any future enthusiasm or helpfulness on his part, I got up, put on a dressing gown, and with a half-plate camera, staggered up to the heaving deck. While he stood beside me I focused and went through the motions of taking a picture. When the shutter clicked he went away satisfied, but he did not know that I had no plates in the camera.

During this time we had dreadful weather, low temperatures and an unceasing rain of spray which reached well over the bridge and froze immediately it touched the ship. Much of the crew's time was spent in breaking the thick ice from the rigging and deck and throwing it overboard to prevent the ship from becoming unduly top heavy and capsizing. We came suddenly upon pack ice when nearly sixty-four degrees south and spent some time collecting water samples and towing nets. I remember one afternoon we were doing a station in the newly formed pancake ice. We were having great difficulty with our frozen gear; but we endeavoured to keep it working with paraffin flares on the end of poles—an operation we had to perform at almost every station and which, when performed in the hours of darkness, made us look like a lot of carol singers. We had lost all feeling in our hands, feet, and faces and our eyes were red and watering from the rasping wind. I turned to speak to Dilwyn John as he came off the fo'c'sle head, but was unable to utter a word. My jaw just dropped and refused to function. The same afternoon some amusement was caused by one of the ship's company breaking a denture as he tried to bite into one of the cook's bread rolls.

We found little to amuse us during those days and tempers were short under the strain. Conversations consisted of pleasures past and pleasures to come.

After a few days in the vicinity of the pack, working in an easterly direction, we turned north for Melbourne. On station one night a group of penguins suddenly appeared and came squawking round the ship. We were very surprised, for the nearest land was a thousand miles away. But those familiar friendly cries cheered us immensely on that dark and stormy night. As we neared Melbourne, our spirits revived, and the day before arrival the usual beard-removing, clothes-washing and hair-cutting produced an atmosphere of festivity. I was called on to do much hair-cutting and, balancing myself as well as I could against the heavy rolling, I clipped and sheared my companions back to respectability.

A week later, greatly refreshed, we were again southward bound, battling with confused seas. The ship had a cork-screw motion—one moment high in the air and the next wallowing in a trough with seas pouring on deck. We were knocked about a lot and limbs were sore and bruised. Midwinter's day 1932 found us bumping through heavy pancake ice. We found a patch of open water and in the evening did a station during which a seal came sniffing round the ship. By morning the patch of open water had frozen over to a depth of several inches. We spent some days in the pack towing nets and collecting water samples. The days were very short and the light poor. Paraffin flares, ice axes, sledge hammers and hot water were all brought into play to remove the masses of ice encumbering the ship. Between snowstorms we saw further displays of aurora.

Despite the rigours of the weather I hated leaving the ice where my life on board was the happiest. We passed through the 'fifties' and 'forties' buffeted, soaked and with cabins flooded, until we reached New Zealand. At Auckland we spent a most enjoyable month refitting and resting.

Leaving that kind and hospitable land and its equally kind and hospitable people, we sailed for Antarctica again. Wintry weather persisted, and made our stay ashore seem unreal. Our brief holiday had given us new strength and much to talk about for the first week at sea, after which we had the usual task of thinking

hard to find something of interest to say. On entering the pack at sixty-two degrees south we ran into a terrific gale, so we turned back into open water and hove to. Big seas were soon crashing on deck, which was deep in water. Loose ice surrounded us and looked most formidable as it rose and fell on the huge waves. To the general uproar was added the noise of the ice crashing against our sides.

Following a night of 'gymnastics', the next day, Sunday, was calm. What had a few hours before been fearful was now a scene of great beauty with the sun sparkling on the pack ice and the many icebergs nearby. I remember standing on the bridge and seeing a fine, curiously shaped iceberg which I resolved to photograph when we came close to it. I turned away for a few moments to look in another direction, picked up my camera in readiness and was most amazed to find that my iceberg had suddenly disappeared. In less than a minute it had completely collapsed and was now just a heap of brash ice.

Still working our way eastwards, we ran into a gale which lasted ten days. Waves running parallel as far as the eye could see grew mountainous and frightening, and every one threatened to capsize and swamp us. Never before had I seen such seas. But the ship was a good sea boat and rose nobly to the demands made upon her. Soon there was not a dry spot on board, and leaks appeared everywhere. The noise was deafening, eating was difficult and laborious, and night after night we spent holding ourselves in our bunks. Three times in one night I was thrown from my bunk to the floor, after which I spent the rest of the time until breakfast wedged on a settee. Hounded by the weather, we passed Cape Horn, through the Magellan Straits and so to the Falklands.

Returning by the same route, we went due south and met pack ice just after crossing the Antarctic Circle. The same evening the barometric pressure dropped rapidly and the automatic recorders ceased to function. An hour or two later a terrific gale sprang up with a wind reaching a force of ninety miles an hour. We were very lucky not to be in the open sea, and at breakfast-time next morning a blizzard was raging with such violence that it could not be faced. When the blizzard had blown itself out we continued eastwards in the pack for some days before making for Deception Island. On the island I was able to do some ski-ing and get a few photographs. To pass to and from the ship one had to jump from floe to floe.

The Bransfield Straits were free from ice when we left Deception Island. We steamed to the south of the South Orkneys, which were also unexpectedly free from pack ice. After having turned north to do a line of stations to South Georgia, we called at Laurie Island and paid a surprise visit to the Argentine Meteorological Station in Uruguay Bay, manned by Argentines who were relieved each year.

As we steamed into the bay we saw the hut built on the narrow strip of land separating Uruguay Bay from Scotia Bay which was immediately opposite. The hut was almost completely submerged in snow. As we approached one of the Argentines came out of the hut and, seeing the ship, dashed in again for his companions. A few minutes later we saw them dragging a small boat over the snow, and by the time we had anchored two of them came alongside. They were hauled

Above: Loose pack ice off Buckle Island in the Balleny Islands group
Below: Heavy floes, reaching ten feet above water, in the Ross Sea

on board and taken into the ward-room where an excited conversation in broken Spanish, French and English immediately got under way. One of our own boats was lowered and a party of us went ashore. We were met by two heavily bearded individuals and two very fierce husky dogs. We trudged through the snow to the hut where we met the two other members of their party.

The hut, built of wood, seemed rather frail and had wire ropes running over the roof and fixed into the earth on either side to prevent it from being blown away. Inside the hut was a small living-room crowded with instruments, books, a gramophone and many other oddments. On the walls were photographic prints showing the hut in winter and the harbours frozen over. There was also a calendar of days starting from 365 and ending at 1 which they crossed off each day to show the number of days left before their relief could be expected to arrive from Argentina. Leading off the living-room were two small bedrooms each shared by two men. Here the walls were decorated with lurid cuttings from South American magazines. There was also a store-room, a kitchen in which the cook slept, and, at the other end of the hut, a wireless room in which the operator slept. His job was to send daily weather reports to Buenos Aires.

As we were the first people they had seen for ten months our visit was a great event. All their food was tinned except for fresh meat obtained by killing seals and penguins, and eggs collected during the nesting season from the large Adelie and Ring penguin rookeries about a mile away. Usually sufficient of these were preserved to last them the greater part of the year. As they had plenty of food Briggs and I shared their midday meal of fried penguin eggs and seal meat while some of their number went on board the *Discovery II.*

It was snowing so we stayed in the hut all the afternoon, talking. In a mixture of languages they told us of two fellows who a few years earlier had got lost on the glaciers at the back of the hut and had never been seen again; also of a quarrel in which the man who had caused it was killed. Considering the difficulties under which they lived, the severity of the climate, the grimness of their surroundings and absence of medical aid, I was surprised to learn of the few deaths which had occurred there. During the afternoon the two dogs attacked a seal which had hauled out on the beach to sleep. The seal was soon a mass of blood and no amount of calling would make the dogs desist from their vicious biting. The cook thereupon fetched a gun from the hut and fired it into the air. The dogs evidently knew the significance of this for they came running back—and were helped into the hut by the cook's sea-boot. The head of the party was a German who seemed well qualified to deal with any difficult situation which might arise, and despite their rather cramped and crude surroundings the men seemed quite happy and were eagerly looking forward to the arrival of their relief. Next morning the sun was shining. We stayed until midday to allow the navigator to fix the position, during which time I wandered about with my cinema camera. A number of Adelie penguins came ashore and amused us immensely by flopping on their bellies, using their feet like paddles, and tobogganing across the snow. Bidding the observers *au revoir*, for in a few weeks we would be returning to survey the islands, we continued our oceanographical work to South Georgia where we again spent Christmas.

Above: Marshall Bay, South Orkneys

Below: The *Discovery II* in Ellison Harbour, Powell Island, South Orkneys

The month of January 1933 was spent surveying the South Orkneys. February was occupied in doing stations and visiting Port Stanley for the Centenary Celebrations of the founding of the Colony, and it was on March 1 that we sailed from South Georgia on the last leg of our circumpolar cruise. We steamed between the South Sandwich Islands in dull weather and turned south to the ice edge, which we met in sixty-nine degrees south, passing through open water where fourteen months earlier we had found heavy pack. By the time we met the pack we were only sixty miles from the land which we had been hoping to reach. On our wireless we heard that two hundred miles from our position a Norwegian, Captain Risser-Larsen with two companions, dogs and stores, had landed on the ice from a whaling factory ship with the plan of sledging round the shores of the Weddell Sea. Disaster came upon him almost immediately, for the sea ice broke up and most of his dogs and equipment were lost. Fortunately a whale-catcher was able to pick the party up and take them back to the whale factory.

We stayed two days in the pack, then turned north doing stations every three hundred miles until we reached Simonstown. Our arrival there ended our first circumpolar cruise. To all intents and purposes this marked the end of our commission, and the journey was continued northward for home. Two days before reaching England we lost Captain W. M. Carey, R.N., over the side: this was a sad end to a fine man and a fine career, and also to an outstanding commission.

The second circumpolar cruise was undertaken in the summer of 1937–8. After we had left Cape Town in the middle of November a south-easterly course was set. About two hours after leaving, a youthful stowaway was found sleeping in one of the boats. The ship was then headed for Simonstown and a message was sent asking for a boat to take off our unwanted passenger. In altering course the ship rolled heavily, and this had an effect on the lad, and until he was taken off by the naval motor-boat his favourite position was leaning over the ship's side.

We then got away in earnest and were soon in the throes of cross seas which swamped the decks and us. Eating, sleeping and working were difficult and sea-sickness did not lessen my troubles. During this time, when seas were breaking over the bridge, I found that holding myself in my bunk was of little avail, and that the floor was the best place on which to try and get some sleep.

Time passed slowly and monotonously, punctuated by heavings-to in dense fog and occasionally by a convivial evening to celebrate a birthday. We saw Snowy petrels, and pack ice was met soon after in fifty-seven degrees south. We saw a number of whales, including a school of fifty Fin whales, and a dead whale was seen swarming with birds. Near the ice edge we also passed one or two whale-catchers. One stormy night a whale-catcher, attracted by our lights, bore down on us in the darkness with no lights showing. She did not answer our signals or wireless calls, and, having come near enough to satisfy her curiosity, she steamed away again at full speed without disclosing her identity. Stations were down to five thousand metres and as there were some heavy falls of snow some of the crew indulged in snowballing.

We followed the pack eastwards, then turned north-east for Fremantle. After we had left the port, one of the crew, a Scotsman, regaled us each evening with outpourings from the bagpipes, until the cold and our lack of appreciation caused him to desist. We met stormy weather and many icebergs in sixty-three degrees south and nearly everyone was feeling rather miserable. Laughter was seldom heard. One bright spot in our hard and cheerless existence was the making of tea in the laboratory each morning. One of the members of the scientific staff always complained that his tea, no matter how weak, was too strong. One day we gave him condensed milk and water, and asked him anxiously if his tea was still too strong. No, it wasn't too strong, it was just right.

Seventy miles from Sabrina Land we met heavy pack ice. Working eastwards, always hoping to reach land, we experienced a number of blizzards and after we had crossed the Antarctic Circle we got to within twenty miles of Adelie Land before being held up by the heavy ice. Among the mass of icebergs through which we threaded our way, one was seen silhouetted against the dark sky with waves dashing at its base. It was two hundred feet high and cone shaped. In the bright weather—there was now no darkness—we again saw numbers of whales, many of them Humpbacks. A couple of Killers also put in an appearance near the ship, their dorsal fins looking like sails. We were again in the region of the south magnetic pole, and our compasses were behaving madly and our wireless was out of order. We left the pack and passed through enormous numbers of bergs, and made for the Balleny Islands, which, although free from ice were enveloped in thick fog and snow. A bitterly cold wind was blowing. Later in the evening the wind dropped considerably and the cloud lifted, leaving Buckle Island, eight miles away, bright and clear. Later still, a gap in the clouds appeared on the horizon and through this gap the sun showed—a great dazzling ball of burnished gold. Immediately the drabness was transformed into a scene of fairy-like beauty. The island and the many icebergs shone like brass. We watched from the ward-room windows, for outside it was bitterly cold, and saw the sun sink gradually below the horizon and the magic pass and the greyness return.

At four o'clock the next morning, I was on deck with my cameras. It was a lovely day and a running survey of the islands was already in progress. I got one or two good photographs but itched to be ashore, as I felt that many photographic opportunities awaited me. When that evening we turned north without landing I was bitterly disappointed.

A brief visit was made to Campbell Island, where the tall, dense bushes and the wet and slippery conditions underfoot made movement extremely difficult and laborious. After being accustomed to the wide open spaces, we felt an over-powering sense of claustrophobia.

Within a few feet of the beach we struggled in this blanket of bushes which stretched above our heads and through which we caught glimpses of the cloudy sky. Owing to the weight of my cameras I was continually caught in the bushes and thrown off my balance. We lost all sense of direction, except that of ascent or descent, and were often out of sight of one another, although not more than a foot or two apart. Suddenly feeling lost one would shout, only to see a bush parted and to find a companion an arm's length away. Near the top of the hilly island

Argentine Meteorological Station in Uruguay Bay, Laurie Island

the tall bushes thinned out and then ceased. I arrived in the open almost exhausted and wet through with perspiration. A strong, cold wind was blowing which quickly cooled me down. Roaming about the top of the island I found numbers of Wanderer albatrosses courting and nesting. Here the bush was low, but still dense enough to hamper movement. I got some good photographs of the albatrosses, then, in company with two sailors of the party, began the descent to the beach.

Tired as I was, the descent seemed more difficult than the ascent. Frequently we had to retrace our steps and we would get a feeling of desperation as we wandered in the undergrowth. We were heartily glad when we reached the boat after a struggle which must have lasted two hours and covered only about a quarter of a mile.

We left Campbell Island in a half-gale and fog, and made good progress to Dunedin where we were lavishly entertained. Here Dr Mackintosh, who was the new Director of Research of the *Discovery* Investigations and one of the original members, left us to return to England. The ship's company was almost entirely different from that of the first circumpolar cruise. Herdman now became senior scientific officer on board and Lieutenant L. Hill, R.N.R., was the captain. Herdman was an hydrologist and with him in the small chemical laboratory was Clowes, also an hydrologist, and myself. Herdman and Clowes were each well over six feet tall. When wrapped up in several layers of clothes and wearing heavy sea-boots, the 'hydrological trio'—as we came to be called—when going out on stations, must have looked like a couple of giants leading the circus dwarf—with me as the dwarf. I could not help feeling that I looked all sea-boots and hat.

From Dunedin we proceeded to Antipodes Island which we encircled close in two or three times looking for possible ship-wrecked mariners. We fired rockets but saw no signs of life ashore, so turned southwards once more. Although we met better weather life on board was still monotonous, and to relieve this cribbage tournaments, which proved very popular, were arranged among the ship's company.

We crossed the Antarctic Circle, and it was not until reaching seventy degrees south that we met pack ice. We saw numbers of whales along the ice edge and one night, farther north, several whales played around the ship while it was stopped for station. The loud 'whoosh' of their blow as they broke surface sounded eerie in the darkness. After we had left the ice we met rough weather on the way up to Cape Horn. The wind howled through the rigging and the ship trembled from stem to stern as each wave hit her. Port Stanley was eventually reached, and after a brief stay we sailed in the direction of the South Orkneys. We again passed to the south of these islands, where there was a gale blowing, and temperatures twenty degrees below freezing.

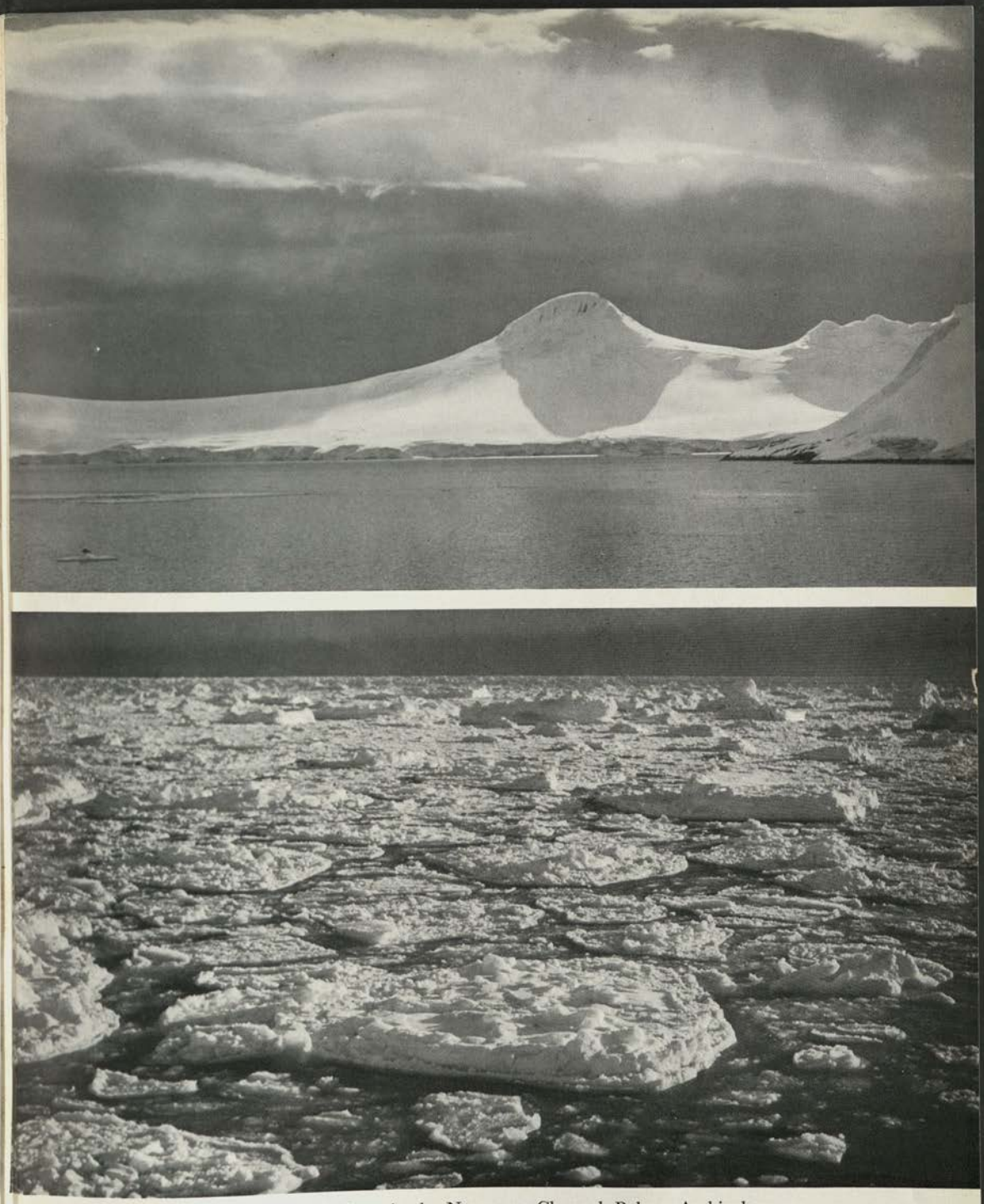
After I had finished the analysis of my sea-water samples one afternoon when the ship was thick with ice which sparkled in the sunshine, I took my camera to the fo'c'sle head. Here the lookout was endeavouring to keep a foothold and to dodge the showers of spray which froze immediately they touched the deck. In a few minutes all feeling had gone from my hands and feet, which made the task of trying to focus the camera an extremely difficult one. Three times I had

to scramble, ungracefully and gasping, to my cabin to clean the ice from my camera before I succeeded in getting a photograph of the lookout. Then came the long and painful business of restoring the circulation to my numbed and swollen hands.

The open sea extended to sixty-two degrees south where ice-blink, then pack ice, appeared. Ice-blink was a good indicator of the presence of pack ice, and is caused when light is reflected back by the ice to the clouds above it, making them appear much brighter. Sometimes a tabular iceberg would be seen with a patch of ice-blink of roughly the same shape and area apparently suspended above it. After doing a few stations the ship was headed for South Georgia which we reached a few days later. Our stay here was short, and after taking on board scientific apparatus which we had left at the Marine Station, and saying good-bye to our Norwegian friends who were then waiting to return home to spend the earnings of a successful season, we began the last part of our journey.

Our course was easterly until we reached 0° of longitude, when we turned due south and ran into a series of gales which gave us neither rest nor sleep. Stations were down to a depth of 5000 metres. The sea was now beginning to freeze and for 200 miles we steamed through newly formed pancake ice before meeting the pack proper. What a few days earlier had been open water was now a vast area of whiteness gently undulating with the swell. Steaming for hundreds of miles through this milky slush, which hissed gently against the ship's sides, was rather soothing, though not so the thought of being frozen in if we delayed unduly, for whenever the ship was stopped we could watch the ice crystals getting thicker. Turning east, we worked through the ice until we reached the twentieth meridian. We were then about sixty-eight degrees south and with winter approaching we turned north.

During these last few days I had been trying to get photographs of birds in flight, but the low temperatures and the high winds made working the camera difficult and the fo'c'sle an unpleasant spot. The ship was again thick with ice and the stormy seas made moving about on deck a dangerous operation. On stations we were cold and miserable and slithered about in all directions on the constantly heaving and rolling deck. With heads bent to dodge the force of the swirling snow, we talked of firesides with tea and toast, and of country lanes. A following sea helped us along, but the *Discovery II* rolled excessively. Life was very unpleasant for us all, for there was no respite from the constant strain of trying to maintain a balance. With fog and snow every day and the decks swirling with water, we eventually reached Cape Town to complete our second and final circumpolar cruise and to begin refitting for further struggles in South Polar seas.



Above: Evening shadows in the Neumayer Channel, Palmer Archipelago
Below: Pancake ice off Enderby Land

CHAPTER X

THE HELPING HAND

On three occasions during the time I was on board the *Discovery II*, we were able to extend a helping hand to other Antarctic expeditions. First, to the British Graham Land Expedition in 1934; then to Admiral Byrd's Expedition, 1933–5, based at Little America on the Great Ice Barrier in the Ross Sea; and finally to Lincoln Ellsworth's expedition on which he attempted to fly across the Antarctic Continent from Graham Land to Little America.

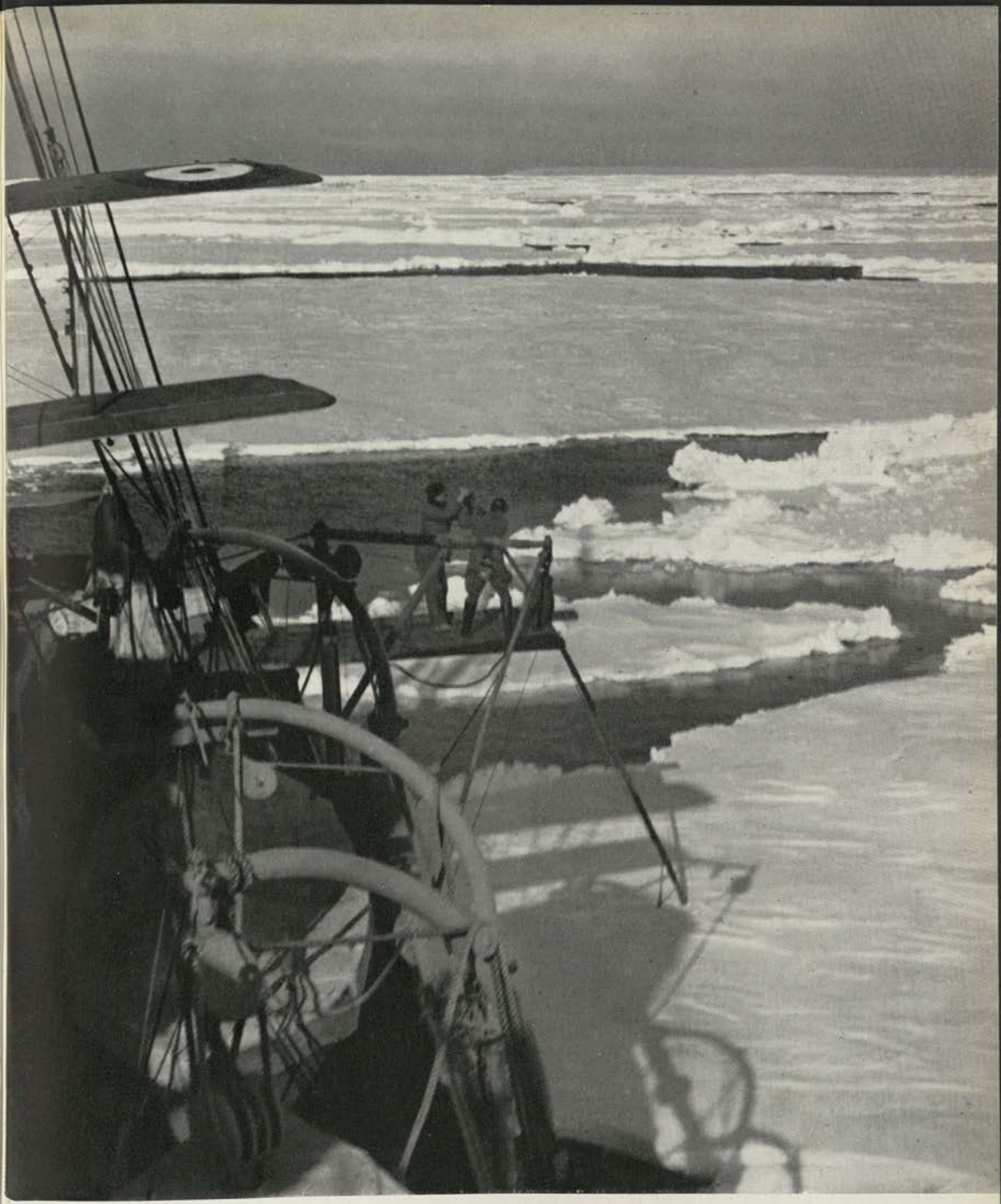
The British Graham Land Expedition had arrived in Port Stanley and found that it had too many stores and dogs for its small boat, the *Penola*. Since we were then working in the Falkland Islands sector, the *Discovery II* was to help by taking the dogs and such of the stores as was possible to the expedition's proposed base at Port Lockroy. We sailed from Port Stanley one Sunday early in December 1934 with the dogs placed in two pens, one on the fore-deck and one on the after-deck. It was blowing hard and raining, and as soon as we left the shelter of the land we began to roll heavily and ship water. The dogs were miserable and sea-sick. They slipped about the wet decks, and when they were not snarling and fighting each other they were howling in unison like a pack of wolves. Not a man on board got a wink of sleep that night (or any other night while the dogs were on board) because of the deafening and unending noise they made.

Next day an attempt was made to improve the dogs' condition by removing them from the fore-deck. Some were chained along the passages, while the rest were put with the others aft and a sail was erected to protect them from the continual spray.

The weather worsened and seas continually swept over the ship's rail. The lower bridge was damaged and we made little progress. That night it was like hell let loose. The ship was rolling heavily, and one moment I was standing on my feet and the next balancing myself on my head. The dogs howled without ceasing and their noise, added to the noise of the storm, was maddening.

Next morning everyone looked worn out. On the third night a heavy sea swept aboard and broke the dog pens, letting the dogs out. They ran about frightened and howling, and in the morning were found in every part of the ship. As we approached the South Shetlands the weather improved slightly and the dogs looked happier.

After having been at sea five days we reached the Neumayer Channel leading to Port Lockroy only to find it filled with pack ice. A few seals and about thirty penguins were killed for food for the dogs, and it was then decided to return to Deception Island.



The *Discovery II* being manœuvred through ice floes in the Ross Sea with the aid of poles. The aircraft on deck is that used in 1936 to search for Ellsworth and Kenyon

The two members of the British Graham Land Expedition—Hampton and Bingham—who had accompanied us, went ashore at Deception Island with the dogs and it was arranged that we should pick them up a week later, when it was hoped the Neumayer Channel would be clear.

The British Graham Land Expedition had been organized to explore parts of Graham Land. The leader of the expedition was John Rymill who, together with Hampton, his second in command, and the surgeon, Dr Bingham, had had some previous experience in the Arctic. Hampton was the pilot and Bingham was in charge of the dogs. Ryder, who won the V.C. in the second World War in the raid on St Nazaire, was the captain of the *Penola* and had been loaned to the expedition from the Royal Navy.

During our wait for the channel to clear the *Discovery II* was to do some surveying of the South Shetlands. The islands we were to survey were mostly low and flat and completely covered with ice; many of them were heavily crevassed. One evening we anchored in Yankee Harbour (so called after the old American sealers who used to go there in search of Fur seals and oil) and Briggs, two other sailors and myself went ashore. It was cold and the sea was choppy for our small boat. Upon landing we found relics of the visits of the sealers in the form of broken try-pots and heaps of stones upon which they had made their fires. The try-pots were about three feet high, open at the top and rounded except for two flat sides, the purpose of which had been to facilitate stowage aboard the sealing boats. In these pots the seal blubber was boiled and the oil extracted. I wondered how many seals and penguins had met their death there. But now all was peaceful and Weddell seals were lying on the beach and others, playing in the surf, were rolling on top and over one another. Hundreds of penguins were nesting and some of them had very young chicks which they guarded very carefully, and only reluctantly let us have a peep at them. Making the long journey back on board, we were soaked to the skin with spray.

We made our way to Admiralty Bay which we found full of ice. There were plenty of glaciers, and the next morning the sun was shining and I was up at five and given a quarter of an hour to go ashore. I hurriedly climbed the hill and got a photograph before the ship moved off.

A wireless message was received from the *Penola* requesting us to delay our departure from Port Lockroy as long as possible. We returned to Deception at the end of the week, as arranged, and eventually spent Christmas there. Christmas greetings were exchanged with Admiral Byrd who was camped at Little America and with Lincoln Ellsworth on his ship the *Wyatt Earp*. Ellsworth was then only two hundred miles away, and awaiting a chance to fly across the Antarctic Continent to Little America.

On Christmas morning we had boat-races and played a comic football match. Most of the ship's company turned out for this, dressed in whatever odd garments they could lay their hands on. Some wore trilby hats and sea-boots, others wore overcoats or had their shirts outside their trousers. Two heavily bearded, irrepressible firemen wore white coats and bowler hats. On our way to the football pitch they set up an old packing case and, with much realistic patter and gesticulations, offered to sell us 'lovely wafers' composed of lumps of snow placed between

bricks obtained from the whaling station. Sedate and portly members of the ship's company frolicked like schoolboys, puffing, blowing, and roaring with laughter. It was a happy interlude, and only tiredness and the thoughts of Christmas beer brought the game to a close, and the party returned to the ship.

It was intended that we should have more boat-races in the afternoon, but by that time it was difficult to find crews. During the afternoon I went ashore with Briggs to get a photograph of the dogs which were now fit and well. Curiously enough, the 'King' dog (the one which could fight the longest and hardest) was the one which had been in a zoo for a long period and we had feared for its safety among its more wild and ferocious opponents. The average time for a dog to be 'King' was about three months, by the end of which time it was worn out with fighting and was forced to give pride of place to another.

It was not until a fortnight later that the dogs and stores and the carcasses of about forty-five seals were hauled on board, and we turned south again for the Neumayer Channel. This time, we found it free from ice, although Port Lockroy itself was still frozen over. We were able to bump into this ice and break it up, and the wind then took it rapidly out of the harbour. No photographs were possible during the journey through the channel because of heavy cloud and, by the time we had anchored, fog and snow blotted out the landscape. We remained here about ten days unloading the dogs and stores. The snow and fog persisted and I despaired ever of photographing this beautiful scenery which, for years, I had wished to do. In the meantime I took cinema and still photographs of the unloading, lent a hand as did everyone else, and made preliminary excursions ashore looking for vantage points should the sun eventually make an appearance. Briggs came with me and we climbed glaciers and rocks, but seldom got far before fog turned us back. I was up most mornings at five and was sometimes ashore by six, but there were times when I could not get a boat and I had to stay aboard. This was very annoying, particularly when one afternoon the sun made a short appearance through the clouds. Mount William which lay nearly opposite Port Lockroy and was five thousand feet high, looked dazzlingly beautiful. I could do nothing about it, as from the ship, all but the top of the mountain was obscured. It never looked so beautiful again while we were there. However, I was partly recompensed that evening when, coming up from the dark-room, I saw a smaller peak was lit with sunlight and looked a lovely milky white which slowly turned to a delicate rose pink before joining the surrounding greyness.

Two days before we left the weather looked hopeful, so after breakfast Briggs and I went ashore with four large cameras and two stands and began an arduous climb up a long glacier to get photographs of the harbour and part of the Neumayer Channel. Climbing the glacier on skis, heavily burdened as we were, was warm work. The sun reflecting powerfully off the ice was painful to the eyes and scorched our faces. I got one or two good photographs of Port Lockroy and the channel, with the ship looking very small from our elevated position. Then, with the camera-case straps cutting into our shoulders, and our heavy load making it difficult to manage our skis, we descended the glacier without incident, and arrived back at the ship tired and hungry. The same evening we again climbed the glacier, this time with only two cameras, to get photographs of the Peltier Channel and

the 'Saw Edge' mountains. When we had climbed high enough to see down the channel, the scene was glorious. We continued climbing, avoiding the cracks and snow-covered crevasses which increased in number as we got higher. It was now getting late, so after I had exposed one or two further plates, we climbed down the glacier and returned on board after a photographically successful day.

On the beach were a few seals and a number of penguins nesting; in one spot, penguins and shags were nesting amicably together. To prevent the dogs from killing all the penguins in the vicinity and from straying and falling into crevasses, a pen was built with much labour on a small island. Within an hour, however, the dogs had broken their way out, some of them swimming to where we were getting stores ashore. A Gentoo penguin which was unfortunately in their path was quickly killed. They took great delight in killing penguins and mauling seals.

More dull weather followed, so little camera work was possible. Hampton assembled his aeroplane on board. It was then hoisted on the ship's derrick and manœuvred over the side into the water. As the aircraft was fitted with floats the motor-boat was able to tow it ashore, where it was hauled on land and anchored by partly burying it in the snow. A wind-break was built round it with heavy packing cases reinforced with snow. We said goodbye to Hampton and Bingham who had set up a tent on the snow, gave a few blasts on the ship's siren and steamed slowly out of Port Lockroy through the narrow Peltier Channel, and into open water.

As we had received reports of the presence of Fur seals we visited a number of islands to look for them, passing many whales and large icebergs—two of them over fifteen miles long and above which ice-blink stood in the sky. We found no seals, and passing north of the South Shetlands made for South Georgia, doing two stations a day, to pick up much needed stores. Just before we arrived we heard that the *Penola* had arrived in Port Lockroy, having taken three weeks on the journey from the Falkland Islands.

January 1934 found us following the ice edge at about seventy degrees south and making our way to New Zealand. One morning we saw on a floe an old packing case which had been thrown overboard by one or other of Byrd's two ships then in the Bay of Whales to our south. We exchanged greetings by wireless with Admiral Byrd, and turned north to New Zealand, meeting a heavy storm which lasted about eight days and gave us a rough time, particularly as the ship was very light and well out of the water.

While we were in Auckland a request was received from Admiral Byrd for a doctor and stores to be taken to him on our way south again. So a call was made at Dunedin where a Maori doctor and stores were taken on board. The journey south was uneventful and everyone hoped we would go to the Bay of Whales. But a rendezvous was made with the *Bear of Oakland* and we met in a patch of open water in about seventy degrees south. It was snowing and a strong, cold wind made it difficult for us to come alongside each other. It was ten o'clock —too late to start transferring stores—so we spent the rest of the evening fraternizing. Theirs was a dry ship so the evening was spent on the *Discovery II*, and by one o'clock in the morning when the Americans returned to the *Bear of Oakland* ours was nearly dry too.

Above: The British Graham Land Expedition's aircraft anchored at Port Lockroy
Below: The hole in the snow at Little America leading to Ellsworth's hut

Early next morning our sailors were busy transferring the stores. The job was finished about midday, and, bidding farewell to the Americans, we turned in the direction of the Falklands. As the *Bear of Oakland* pulled away from us she ran up flags, but since I could never read these I did not know if they read 'Good-bye and good luck' or just 'Thanks for the drinks'.

Lincoln Ellsworth's first attempt to fly across the Antarctic was abandoned as weather conditions were unsuitable during his summer in the South Shetlands. His second attempt, this time from the Bay of Whales, was also a failure. His plane was badly damaged by ice, and had to be returned to America for repair.

For his third attempt he chose to try again from the Graham Land sector, and when his flight had started, his ship, the *Wyatt Earp*, was to make for the Bay of Whales where he hoped to land.

About that time we were working eastwards along the pack off Enderby Land and only heard indirectly of the flight on our wireless. Then one morning while nets were being towed in the ice all work was suddenly stopped, and in a few minutes we were steaming all out for Melbourne. A wireless message had been received from the *Discovery* Committee instructing us to hasten to Melbourne to take on an aeroplane and stores, and to proceed with all haste to look for Ellsworth and Kenyon, his pilot. Nothing had been heard of the two men since soon after the flight had begun, and it was presumed they might have been lost or had crashed and were in need of help.

We made good progress in a following sea and reached Melbourne in about ten days. We at once began to take on stores of petrol, oil, food and aeroplanes. Ten hectic days were spent in Melbourne before we were ready to sail and on Christmas Eve we put to sea. On Christmas Day a storm was blowing in the Tasman Sea and as the ship was unusually and heavily loaded its movements were so extraordinary that practically everybody on board was sea-sick. I managed to eat my food but did not enjoy it, and cannot remember ever spending so unpleasant a Christmas Day. There was no merrymaking for us that day or the day following, for during this time the seas were sweeping across the decks and cargo.

I was now sleeping in a cabin on the bridge, having given up my cabin below decks to two of the six Australian airmen who had come aboard with the planes in Melbourne. Two of the Australians were pilots, and one of them, Douglas, had had previous Antarctic flying experience with Sir Douglas Mawson's Expedition when Scott's old ship the *Discovery* was loaned by the *Discovery* Committee for a joint British, Australian and New Zealand voyage. All the others were newcomers to the Antarctic. In my bridge-cabin I felt the movement of the ship much more and could not sleep for the rolling and noise. A brief call was made at Dunedin to fill up finally with fuel-oil and water. On the journey south, sledges were repaired, sledging harness made, and the aeroplanes painted a bright yellow. We met icebergs in sixty-five degrees south and on the same day crossed the Antarctic Circle. An hour later we reached the edge of the pack ice which was light at first, but got heavier as we went south. The Australians were very thrilled at their first meeting

with pack ice, and spent most of the evening watching it from the fo'c'sle head. We pushed our way through the heavy pack with much bumping and trembling of the ship. It was very much colder, and the southerly winds cut through our clothes. Snow fell occasionally, but now there was no darkness and, when weather permitted, we got good views of the midnight sun. Whales occasionally came up to blow in the open leads as they made their way south. Sometimes they came near the ship and one evening when we were anchored to a floe we were fascinated by the movements of a whale twisting and turning under the water, then coming up to blow. Now and again a Killer whale was seen and once a group of Crab-eater seals, resting on a floe. Adelie and Ring penguins often visited us. Only occasional specimens were seen of the stately Emperor penguin and these were some distance away.

Numbers of tabular bergs were seen in the pack, which became heavier until it was eight or ten feet above the water. The ship was difficult to manage, and to aid the steering we worked hard on the poop and on platforms specially rigged over the ship's sides, pushing on the floes with long poles. Some of the ship's company got down on to the floes and pushed from there. When the ship went forward they then had to jump from floe to floe to regain her.

I was continually on the prowl with my cameras and had a bosun's chair rigged from the fo'c'sle where I sat for long periods with teeth chattering and eyes and nose watering with the cold. My appearance, as I sat there getting bumped and jolted, caused a good deal of amusement, especially when I had to climb hurriedly back on board to avoid a lump of jutting ice—but I was glad of the opportunity to try to get the circulation back in my numbed hands and feet.

The anchors were hauled on deck to avoid their fouling the ice or being pushed through the ship's sides. Sometimes we were jammed in the ice, and after especially arduous days negotiating the floes we anchored to them to get a little rest. Whenever the ship stopped for any length of time and the floes were large enough, I would get out my skis and go for a spin. The Australians, too, took the opportunity of getting a little ski-ing practice.

The aeroplanes had by now been made ready for flight—the Moth for scouting and the Wapiti in case a long flight inland should be necessary. As soon as a patch of clear water was reached the Moth was hoisted on the derrick and, guided by ropes, was lowered into the water. It was fitted with floats—as was the Wapiti—and after skimming along was soon airborne. A reconnaissance flight was made during which the pilot was able to indicate where the ice was least heavy, and an unbroken floe stretching for several miles was seen. When the Moth returned it was heaved on board, lashed down on the upper deck on top of the ship's hospital, and covered with canvas.

When the sun shone the ice looked glorious, and made me feel glad to be alive. Progress was sometimes slow. One day only twenty miles were covered and another day only five; once, after battling for four hours with the ice we covered only a quarter of a mile.

After we had pushed through more than four hundred miles of pack ice we came to the open water of the Ross Sea in seventy-five degrees south. The Bay of Whales was a further three and a half degrees south. The sea was calm and we

bowled along at a good pace, meeting very few icebergs. On January 16, 1936, we had our first glimpse of the Great Ice Barrier stretching as far as the eye could see. We steamed along its vertical face and saw ominous-looking crevasses, wide and deep, and covered with the dangerous snow bridges. Having passed Discovery Inlet we entered the Bay of Whales, and everybody on deck looked with great expectancy in the direction of the Barrier off which an icy wind was blowing. We saw no sign of movement on the ice, but on coming closer we saw a tent with yellow streamers, and knew that Ellsworth and Kenyon had at least succeeded in crossing the Antarctic Continent, although we could see no signs of their aircraft. The ship's siren was blown and rockets were fired, but still no signal came from the Barrier. Had they reached their destination only to die of hunger and cold while waiting to be picked up? Or had they left their tent and gone to Little America where at least they would find food? Black patches appeared on the Barrier which we took to be men, but which we found to be little Adelie penguins.

The Moth, loaded with a parachute to which was attached a container filled with chocolate and other delicacies, was quickly lowered into the water. The two Australian pilots, Douglas and Murdoch, then took off. All eyes watched them as the Moth disappeared over the Barrier. Three-quarters of an hour later it returned, and one of the pilots made a sign that he had seen one man. As soon as the airmen climbed aboard they were eagerly plied with questions. They said that visibility was bad and that it had taken them a long time to locate Little America where nothing but a few poles had been seen. Then a man had appeared waving his arms, and the parachute had been dropped on to the ice. About half a mile from Little America a damaged aircraft had been seen partly covered with snow and it was assumed that Ellsworth and Kenyon had crashed while landing.

A party of five (of which I was one) was landed on the sea ice which extended about a mile from the Barrier. We had intended to make for Little America, but before going far we saw a figure making towards us along the Barrier top. He descended on to the sea ice, and, as I was rather more used to skis than the others, I hastened ahead to meet him. Coming closer to him I could not make out whether he was Ellsworth or Kenyon, as he was muffled up and wearing dark glasses. First asking if he was well, which he was, next if he was hungry, which he was not, I asked him if he was Ellsworth. No, he was Kenyon. Ellsworth was back at Little America with a bad foot. On hearing we were from the *Discovery II*, he said that it was very decent of us to look them up! He looked so fit and well that I had not the heart to say that we had come to rescue him.

I learned that their plane had run out of petrol twenty miles from Little America and that they had wandered for three weeks with their sledge before finding Byrd's old camping place. Then, digging in the snow, they had come upon the skylight of what had been the wireless hut and, lowering themselves through this, had made the hut their home for a month before our arrival. The others had now come up to us and, introductions over, we returned to the edge of the sea ice where a boat was waiting to take us aboard the *Discovery II*. As we came alongside the whole of the ship's company gathered on deck and gave Kenyon three hearty cheers.

Above: The Peltier Channel, one of the entrances to Port Lockroy, Wiencke Island
Below: The *Discovery II* in Admiralty Bay, South Shetlands

It was now two o'clock in the morning and at nine a party of us set off for Little America to pick up Ellsworth. It was very dull and snowing slightly, and we dragged a wooden plank with us to help us across the wide cracks in the sea ice. This plank proved very useful when we reached the Barrier, for here we found a big tidal crack which would otherwise have been difficult to cross. On the Barrier, where everything was a uniform grey and visibility only a few yards, we could easily have been lost without the long line of little red flags stuck into the ice showing the way to Little America. These flags had remained since the Byrd expedition of 1933–5, the object of which was to fly over the South Pole.

Ski-ing on the sticky snow and carrying a cinema camera and a half-plate camera was hard and warm work despite the cold. As we neared Little America, which was about five miles from the Bay of Whales, a figure, limping slightly, emerged from the greyness. It was Ellsworth. While the others proceeded, I stopped to get a few shots of the meeting with the cinema camera, then I hurried to catch up with them.

Introducing myself to Ellsworth, I reminded him of our previous meeting three years earlier in New Zealand, when we had discussed his proposed expedition. He did not recognize me again as I had a three weeks' growth of beard on my chin, but remembered our meeting in New Zealand and had wondered since whether we would meet in Antarctica. We then went on to Little America. All that could be seen were a few poles sticking out of the ice; then Ellsworth indicated a pole which marked the entrance to the hut. Having arrived ahead of the others, I sat down on the ice feeling dog-tired and a great urge to sleep came over me. Sitting there was terribly cold and as I had not eaten for twenty-four hours I was ravenously hungry. We had brought no food with us as Kenyon had told us there was plenty at Little America. When we had slithered down the ten-feet hole leading to the hut we found a fire burning, and the place pleasantly warm after the cold on the Barrier.

We besieged Ellsworth for food; the stove was lit and soon we were tucking into fried bacon, biscuits, raisins, and tea made with melted snow. Ellsworth was most pleased to see us, and eager to leave Little America and get on board the *Discovery II*. We stayed about four hours in the hut, eating, talking and resting, then we loaded Ellsworth's gear on to a sledge and securely closed the hut. It was still snowing fairly heavily, but before leaving I set up a camera and stand, fixed a thread to the shutter, then, by pulling on the thread, I took a photograph of us all before we started back to the ship.

The journey back took us between four and five hours. The snow surface was good, but visibility was bad, and because of Ellsworth's bad foot we could not hurry. After we had climbed down from the Barrier on to the sea ice, we had not gone far when out of the general greyness, big black objects suddenly started to appear out of what we had believed to be solid ice. Slowly these big cone-shaped objects rose from out of the ice, hesitated a moment, then slowly sank from sight. We were amazed, and wondered if we were imagining things. I set off on my skis to investigate, and saw that the cracks in the ice had widened considerably since morning and that whales were now coming up in them to blow. With their enormous bodies making beautiful curves, they came slowly

to the surface, expelling the air from their lungs with a loud hissing noise only ten feet from where I was standing. Then, standing vertically on their tails they pushed their colossal pointed heads slowly upwards and, turning round, sank slowly out of sight.

When we came alongside the *Discovery II* the ship's company was there to give Ellsworth a rousing welcome.

Ellsworth and Kenyon were dissimilar, except that they were both quiet, unassuming men. Ellsworth though weather-beaten, was inclined to be frail, while Kenyon was more robust and younger. Ellsworth had been on a number of adventures which, one gathered, he had undertaken to escape the daily round of civilian life. He did not strike one as being an explorer, either in appearance or manner. In conversation he seemed loth to take the initiative, though willing enough to answer questions. Except for the hurt to his foot he seemed quite fit and in need only of a hair-cut, which I was able to provide soon after his arrival on board. On the flight he had been the navigator and Kenyon the pilot.

Kenyon was London-born and had been a pilot in the 1914–18 war. At the end of the war he went to Canada to resume his flying there. The experience he had gained in flying over the Rockies, where forced landings and improvisations were taken for granted, was later to stand him in good stead. His confidence and resourcefulness seemed unbounded and one could not but admire him. Nothing appeared impossible or hopeless to him, and watching his red face as he smoked his pipe on board, one felt that he was wondering what all the fuss was about.

On the flight they had had to make forced landings, and judging from their descriptions of getting the plane into the air again the position would have appeared hopeless to most men—but all this Kenyon seemed to consider hardly worth mentioning.

We had been in wireless communication with the *Wyatt Earp* for some time, and since she was not expected to arrive at the Bay of Whales for some days, we began a series of stations in the Ross Sea at six-hourly intervals. This kept Deacon and me extremely busy for three days, after which the ship made for the Bay of Whales to wait for the *Wyatt Earp*. It was then late evening, and, out of the snow and mist, Ellsworth's ship suddenly appeared and we returned in company. Next morning I went aboard her and among the Norwegian crew found a cook whom I knew from my whaling days at South Georgia. Later in the day, while wandering about on the Barrier with my cameras, watching the whales playing in the bay and waiting for the sun to appear, I came across one of the sailors from the *Wyatt Earp* who had fallen into a snow-bridged crevasse and dared not move. Only his head and shoulders were showing above the surface of the snow, and his feet were dangling below. I removed my skis and, pushing them slightly in front of me, crawled slowly out on my stomach towards him. I placed a ski at each side of him so that he was able to grip them and lever himself partly out of the crevasse until I could just reach his outstretched hands. I tugged hard and in a few minutes he was standing, a little shaken, at my side.

The following day Kenyon returned to the *Wyatt Earp* and with Ellsworth already on board the *Discovery II* we began the journey back to Melbourne.

The *Wyatt Earp* was to try to retrieve the crashed aircraft and a tractor set off towards it across the Barrier, but fell into a crevasse and was lost. A spare machine set off to where the first had come down, and the crew managed to get it flying and back on board.

Meanwhile we set off on a zig-zag course for Ross Island, doing stations at short intervals as before. We approached Ross Island in bad weather and with a strong wind blowing from the south. The island was clouded over, but at midnight the wind dropped, the clouds lifted, and we got a good view of Cape Crozier and Mount Terror. Then the sun broke through the clouds and I was able to get one or two photographs before going ashore with a party. The ship lay a long way off the island, and since our visit was to be brief we did not get much time ashore. We had hoped to visit the Emperor penguin rookery, but it was three miles from where we landed, and we had to give up the idea. It was a great disappointment to me, but I amused myself in an Adelie penguin rookery near by where there were many thousands of adults and half-grown chicks. Many of them ran away when we approached, while others resented our intrusion and, with feathers raised, ran at us squawking defiance. They had left their individual nests and the young were gathered in groups of about twenty with three or four adults guarding them. There were many Skua gulls about and, judging by the hundreds of dead chicks we saw lying around, the number they killed daily must have been very large. Some of the young were half-moulted and looked funny with odd tufts of fur sticking to them.

Stuck in the ground we found a pole which had been left by Scott's last expedition. There was no message and nothing to indicate the purpose for which it had been used. It might have been a landmark for sledging purposes or for surveying, or to mark a food dump. We could not tell, so with our curiosity unsatisfied and as it was then two in the morning we returned on board and the ship got under way for McMurdo Sound. I went to bed with pleasurable anticipation of landing at Hut Point, of visiting Scott's old hut, and of getting photographs of Mount Erebus. I eventually dozed off, dreaming of photographs. I was awakened once or twice during the night, but at eight o'clock when I finally woke I was told that we were steaming north. My cup of disappointment was full. I learned that pack ice had been found stretching across McMurdo Sound and that the captain had decided against entering it.

Next day we saw Snowy petrels, and knew that pack ice was not far off, and true enough it appeared shortly after. We entered it at midnight and at four o'clock when I went on deck I found the ice thick, the floes large, and the weather dull. At nine o'clock the ship was stopped in the lee of a tabular berg twenty miles long, three miles wide and two hundred feet high, and the Moth was lowered into the water. A flight was made and on the Moth's return a course was indicated and taken. I had hoped to go up on one of these flights with my cameras, but although I sought permission it was not given.

We made good progress, about fifty miles a day, but saw few penguins or seals. On the northward journey we had only to push through 120 miles of pack ice before reaching open water. Then we made for the Balleny Islands where we hoped to land and to carry out a survey. As we approached the islands it was

Midnight sun in the Ross Sea

snowing and blowing hard. Later the wind increased and blew the cloud off the islands, which then stood out clearly, although twenty miles away. We steamed along their coasts and found them greatly different from the descriptions given on the charts. They were, for instance, only 5000 or 6000 feet high as against the stated 12,000. They were heavily glaciated, grim and forbidding. In the afternoon a party of us started for the shore in a motor-boat, but with only a quarter of a mile to go a heavy snow squall enveloped us and precluded any possibility of landing. Disappointed again, we returned to the ship which was blowing its hooter to guide us back. We waited off the island hoping for the weather to clear, but it worsened, and as it became really foul all idea of making another visit to the islands was abandoned.

While we waited, a number of Humpback and Sperm whales were seen and many sea birds—although there seemed to be few places for them to nest on the islands.

We made slow progress northwards in heavy head seas. When in the fifties we ran into a heavy gale and had to heave to. Waves of enormous size threatened to swamp the ship which was labouring heavily. One night a huge wave hit the ship, and caused her to heel over alarmingly. Before she could right herself a second wave came crashing on board and we all thought she would capsize. Everyone was thrown from his bunk, the decks were filled with water to the tops of the rails, both fore and aft, but the ship battled gamely on, with the oil and petrol drums on the deck beating a tattoo at every roll.

Ellsworth and the Australians were eager to get to Melbourne. They had had enough of the *Discovery II* and life on the ocean wave, and were keenly looking forward to their return ashore.

Melbourne was reached at last, where a civic reception awaited us. As we moved slowly into Nelson Pier we saw that barriers had been erected behind which crowds of people eagerly waited. As soon as we came alongside, representatives of the Australian Government, the Services and various other official bodies moved forward to greet us, with much cheering and waving from the crowd. I was sitting with my legs dangling over a ledge jutting out from the flying bridge, working my cinema camera. From this rather precarious position I got a grandstand view of the proceedings.

When the gangway was lowered, Ellsworth, Captain Hill and Deacon descended to the jetty and a vigorous round of handshakes began. The crowd now broke through the barriers, rushed along the jetty, and surrounded the party with hands outstretched in an effort to shake those of Ellsworth and the others from the ship.

When the clamouring ceased, speeches of welcome and responses were made to the accompaniment of busily clicking cameras. Then, with Ellsworth, Hill and Deacon whisked away to an official luncheon given in their honour, we were left to face a crowd of sightseers bent on making the most of the day. While they besieged the ship, we took the opportunity of slipping quietly ashore.

After ten hectic days, we said good-bye to Ellsworth and to Australia, and returned to sea. Our Captain, Lieutenant L. Hill, R.N.R., was awarded the O.B.E. for the exploit.

CHAPTER XI

SURVEYING

On each commission of the *Discovery II* one month was set aside for surveying certain groups of islands which had previously been partly or imperfectly charted. This month was the bright spot of the commission and one to which everyone looked forward. It usually took place in January of the second year of the commission. There were times when odd bits of surveying were done, but these were dependent upon special circumstances—such as finding an island or islands ice free when they would normally have been surrounded by pack ice and inaccessible. It was a pleasant change from stations, and gave me the best opportunities for photography, as I was able to give it my undivided attention.

While I was aboard the *Discovery II* we surveyed the South Shetlands, South Orkneys and parts of the Balleny Islands. The routine for these running surveys was for the ship to operate from a number of 'fixed' positions obtained by the captain or navigating officer who would go ashore with sextant, chronometer and 'artificial horizon' and get bearings on the sun or stars at certain points. The longitude and latitude of these points would become 'fixed' positions, and the basis for the running survey. From these positions the ship would steam slowly round and through the islands, taking bearings all the time. The bearings were taken from the ship on prominent or essential features, and would vary as the ship moved slowly forward on its pre-determined and steadily held course. By plotting the bearings in relation to the ship's position at the time, the points where the bearings intersected would also become 'fixed', though not with the accuracy of those determined by astronomical observations.

On the bridge, the navigator or the captain—whoever was doing the survey—would stand at the compass taking angles while another officer took down the precise time on the chronometer, and noted the details of course and speed and a description of the land and its prominent features. The bo'sun or bo'sun's mate would work the range-finder while another officer used a sextant to determine the heights of the land. Meanwhile I would take numerous photographs of the land and note the precise time of each photograph. These photographs were ultimately correlated with all the other data and the new charts compiled.

Some of the scenery in the South Orkneys was wild, rugged and magnificent, especially on those rare occasions when the clouds, which often completely enveloped the islands, were blown away. Then the glaciers sparkled and looked indescribably beautiful.

There was little black rock to be seen on the islands which were covered with glaciers. On the rock faces, rising vertically from the sea, glaciers clung tenaciously to decorate their hosts. Deep valleys, down which glaciers tumbled,

Glacier and mountains of Coronation Island, South Orkneys

were filled with tortured ice while mountain peaks were covered with smooth ice-caps or fluffy plumes of ice. Coronation Island, the largest of the group, was covered from end to end with a smooth ice-sheet through which one or two peaks pushed their way. From a distance it looked uninspiring, but close inshore the wild and rugged coast filled one with awe. From the ship we saw large numbers of penguins feeding and enjoying a short period of freedom from family cares ashore. As we steamed closer we saw penguin rookeries on all sides—everywhere, indeed, that seemed to offer sitting space. Seals, too, were fairly numerous: Crab-eater and Weddell seals and sea-leopards slept on the rocks unperturbed by thoughts of the possibility of ice crashing on them from the hanging glaciers.

The islands, which are usually surrounded with pack-ice for ten months of the year, were first discovered in 1821 by George Powell, after whom one of the islands is named, while he was searching for Fur seals. A few weeks later Weddell arrived at the islands and finding the seas to the south, which take his name, free of ice he was able to penetrate farther south than any ship in that area has since been able to do. Since then the islands have been visited by sealers and explorers, and in recent years by whalers. Large numbers of rocks and small rocky islands make navigating the surrounding seas dangerous and difficult, particularly when they are enveloped in fog.

We found thousands of icebergs grounded round the South Orkneys, and they were so close together that there frequently seemed no way through. I was thrilled when the navigator—Lieutenant A. L. Nelson, R.N.R. who later became captain of the *Discovery II*—took the ship at full speed twisting and turning among the icebergs which were so near that we could have touched them with a broom pole. Nelson was a born navigator, and we all came to admire his skill, courage and determination which he so often unobtrusively displayed. He would take the ship anywhere and no one doubted his ability to do so successfully.

We anchored every night, and once when hurrying back at full speed to Scotia Bay after a long and tiring day, there was suddenly a loud grinding noise, and the ship heeled over as we grazed along an uncharted rock. It was a narrow escape, for had we been a few feet nearer the ship's bottom would undoubtedly have been torn off.

Whenever the ship anchored and time permitted I went ashore with my cameras, glad of an opportunity to stretch my legs and to look for likely photographs. I trudged long distances over the rocks and snow looking for the best view-points, and having found them I would inevitably end up in one of the many penguin rookeries and spend the remainder of my time ashore among its delightful inhabitants.

One afternoon the ship was anchored in Ellison Harbour, Powell Island, and the crew were out taking soundings of the harbour. The weather was fine and looked like holding, so Dilwyn John, Deacon, Briggs and I set off to climb John Peak. We crossed the long glacier at its base, and began the steep climb up its side. This was comparatively easy for the snow was then soft, but because of the crevasses we were roped together. I had two large cameras with me, Briggs carrying one, and I the other. This made climbing harder and we perspired freely. We passed along the peak's razor edge with the sides sloping steeply away,

and reached the top where we got a glorious view of the surrounding mountains and islands. From here we counted four hundred and ninety grounded icebergs, and had there been no sea haze a much larger number would have been seen. The sun had disappeared from that side of the mountain when we began the climb down. What had only a little earlier been soft snow was now a hard and slippery surface, and our ice axes proved useful. Clothes we had discarded while climbing we were glad to put on again, for out of the sun the cold was piercing.

As we passed along the south coast of Coronation Island in fine weather with the sun shining, the scenery was glorious. The rocks stood out boldly, glaciers glittered to a height of three thousand feet, and the constantly changing scene as we steamed slowly along was one of rare beauty. Towards evening when the shadows lengthened and haze began to cover the land the tones became softened and mysterious.

During the following commission, from 1933 to 1935, a survey of the South Shetlands group was our allotted task, but owing to the help we were called upon to give to the British Graham Land Expedition our programme for surveying had to be considerably curtailed. Much of my time was taken up with routine photographs for chart-making. Sometimes I got ashore, and once, while at Greenwich Island, four of us set off to climb a peak to get sights and angles on the surrounding bays and islands.

The next evening we were in Yankee Harbour on the other side of the island. At nine o'clock Oates, the third officer, Briggs and I set off to make another attempt to reach the glacier top. The glacier on this side of the island was much more heavily crevassed, but climbing on skis and roped together we reached the top in a little over an hour. From our vantage point Oates got a round of 'sights' and we began the descent. The light was now bad, Briggs got a touch of snow blindness and Oates, who found the descent more difficult than the ascent, was continually fouling the rope and finding his skis hard to control on the icy slope. But we were back on the beach shortly after midnight and I was glad to get a rest from the heavy sextant which I had been carrying since we set out. It was one o'clock before we got back to the ship, after having rowed through a lot of drifting ice on the way back, and it was three o'clock before I got into my bunk.

A camping party was put ashore at Harmony Cove to get astronomical sights and obtain another fixed position. Here Briggs again proved his usefulness by acting as general factotum to the party. When we returned to pick them up a few days later he cooked me a fine meal on his primus stove, to which I did ample justice. In this way our month of surveying work passed all too quickly and we reluctantly left the South Shetlands and turned towards the Falkland Islands doing stations on the way.

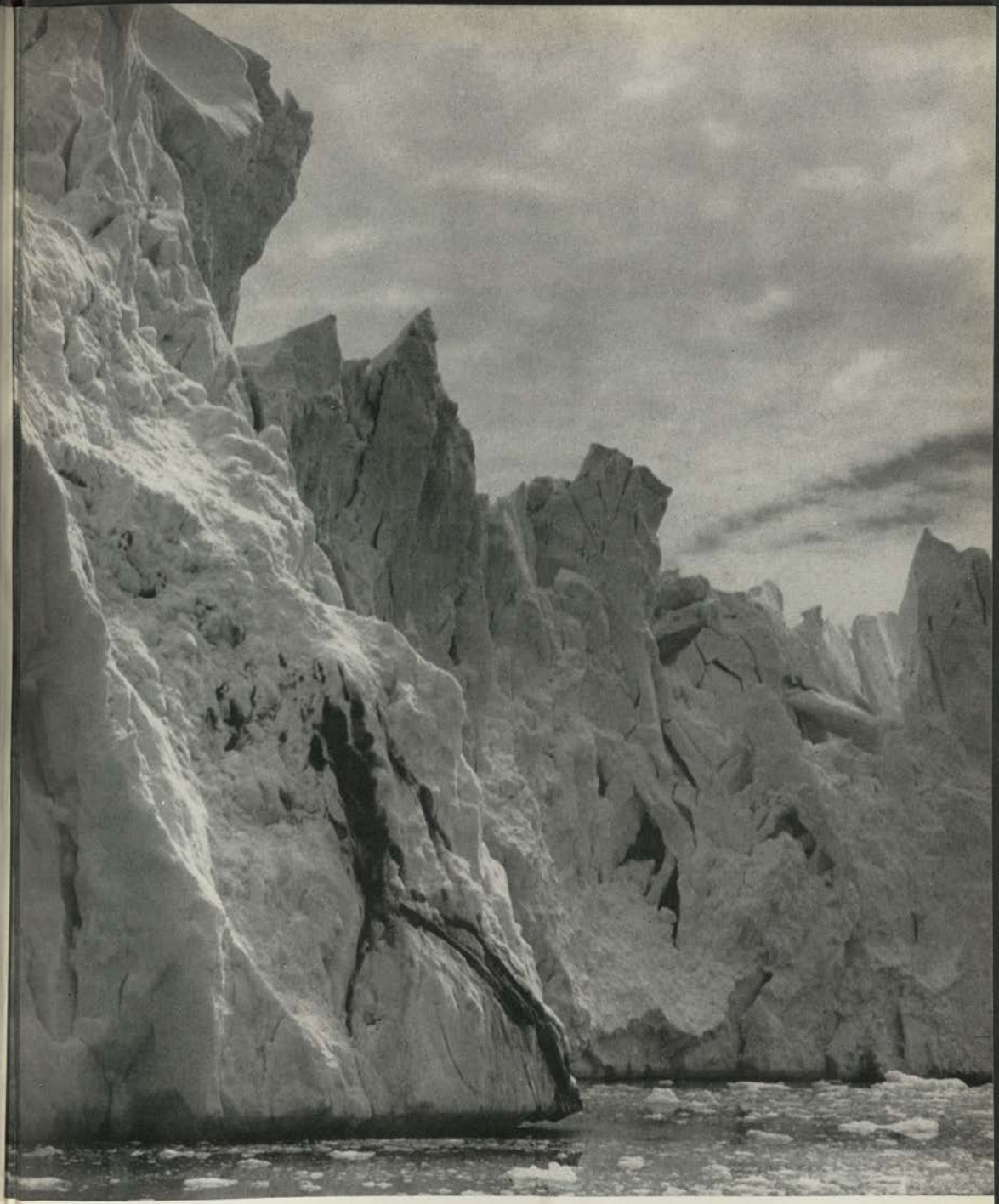
Two years later our month of surveying came round again. This time we were to complete the work begun earlier in the South Shetlands. On the way to Livingston Island we stopped to look for Fur seals at Bridgeman Island which is small, volcanic and six hundred feet high, with perpendicular red sides. We were unable to land because of unfavourable weather. A few days earlier we had received a report from a whaling factory that Bristol Island in the South Sandwich group was in violent eruption, but Bridgeman was peaceful and showed no signs

Above: The deserted and ruined camp at Esther Bay, South Shetlands
Below: On the top of John Peak on Powell Island, South Orkneys

of activity. At Livingston we anchored about four miles off Esther Bay. Next morning, in fine weather, a party went ashore—Lieutenant Hill to get sights, Deacon, Marr and Ommaney to count seals, and I to get photographs. There was plenty of bird life where we landed, including a large Ring penguin rookery and a few Stinkers nesting. Two hours later we returned on board, and next day a party went ashore in the large motor-boat, lent by the whaling station at South Georgia, to survey and sound the harbour. They were to be picked up a week later. I could have gone with this party but thinking it was already large enough (there was Walker, the chief officer, in charge, Ommaney, Gourlay, the second engineer, the doctor and Matheson), and that I might get better photographic opportunities by remaining on board I decided against going with them.

The ship was then taken farther up the coast, going backwards and forwards while angles were taken. We anchored in King George Bay—a large bay with many glaciers and at one place a large stretch of land free from ice and snow and ending in a curious promontory called the Lion's Rump. This was black with hundreds of thousands of Adelie penguins. We had a lively time going ashore in the small motor-boat, with big waves coming in from the sea. Returning a little later the waves were much bigger and continually threatened to overturn our small craft. We got back all right however, and next day three of us went ashore to get sights for a 'fix'. We were Kirkwood, the navigator, a seaman called Cobbett, and myself. Kirkwood and Cobbett were fine fellows, easy to get on with and likeable, so ours was a happy party. We put up our tent by a glacier stream and weighted it down with heavy stones. Within a few feet of the tent was a well worn track where penguins were continually passing on their way to the Lion's Rump. We made a fire and, using some large segments of whales' backbones which we found on the beach as tables and seats, we had a meal; then rested in the tent awhile as it was cold and snowing. Coming out half an hour later we were amazed to see hundreds of Adelie penguins standing in a semi-circle on the rising ground to the back of us, gazing at us with intent interest and with many others hurrying to join the throng of sightseers. I longed to photograph this remarkable scene, but it was snowing fairly heavily and the light was too poor; so, hoping they would still be there in the morning, we turned into our sleeping bags for the night. We had hardly settled when we found that sea-elephants, also, used the nearby track, for one came flopping noisily towards us and stopped right outside the tent. There it stayed sneezing and breathing heavily, and we lay awake apprehensive of its flopping through the flimsy silk tent and on to us. We were greatly relieved when it lumbered off back to the beach. During our stay sea-elephants visited us all too frequently for our liking, although they supplied some good cinema shots.

We got up early next morning only to find the penguin sightseers all gone, much to my disappointment. On the beach near our camp there were lots of sea-elephants whose main pastime seemed to be fighting for they were continually rearing up and lunging viciously at each other. Penguins passed unconcerned and unmolested through the fighting sea-elephants. When not fighting, they were throwing sand over their bodies with their flippers, or sleeping. Occasionally



The crumbling face of a huge glacier in Admiralty Bay

pairs of bulls were seen fighting in the water offshore, while a little way inshore a large herd of them lay huddled together moulting in the mud, and showing great resentment when one of them moved and disturbed the slumbers of the others. Penguins were everywhere and the Lion's Rump and other areas were covered with Adelies and their chicks. Here and there were Ring and Gentoo penguins with groups of chicks herded together. Skuas too were much in evidence, as were the friendly-looking but crafty white Paddies.

Penguins passed all day to and from the Lion's Rump; the thin and dirty on their way to the sea, free from the cares of family life and glad of a chance to feed and disport themselves in the water. Others, fat and clean, made their way soberly back to the rookery. They never stopped to chat to each other: each seemed intent on the task of getting away from or returning to the rookery. At night the traffic was one way in the direction of the rookery, and they would slowly follow each other in single file along the well worn path. Thousands collected on the beach, either waiting to take to the water or enjoying a period of freedom and quiet before returning to the pandemonium of their communal life. I saw one amusing incident when a half-grown chick started off on a premature excursion to the beach. When it had got a little way from the rookery four returning adult Adelies stopped to look at it in wide-eyed amazement, then checked its progress and started to chase it back to the rookery, squawking indignantly. It was here that Cobbett discovered our first Albino penguin and reduced it, alas, to a museum specimen before I could photograph it.

On our last day there I woke at five o'clock to find the sun shining. I shouted the news to the others who dashed off to get sights, while I washed in a glacier stream and tidied up the camp before going off with my cameras. That evening we watched eagerly for the return of the *Discovery II* to pick us up. We had had practically nothing to eat all day and were very hungry. Eventually we saw her coming in our direction and we immediately struck camp. Before leaving, I went to look for a half-grown penguin chick which a few days earlier had fallen three or four hundred feet on to some rocks and hurt itself badly. Two Skuas were fighting for the weak and faintly struggling chick when I had found and rescued it. I had put it in a place of safety among some adult Adelies, but it had crawled away to a quiet spot. It was still there when I went to look for it, and when I picked it up it struggled feebly and squawked with fear. I carried it to the top of the Lion's Rump from where it must have fallen, and put it down. It seemed to recognize its surroundings and took a new interest in life. I watched it for a while and when I left it was squawking in unison with an adult which I hoped was its parent.

We were soon on our way to Esther Harbour to pick up the other party. Near Esther Bay we ran into a bank of heavy fog and had to return to an anchorage at Penguin Island. All next day we were wandering about in thick fog but calm seas. On the ninth day after the shore party had left us, we anchored some distance from land, and, as we received no reply to our repeated signals although we could see the tents on the beach, a party was sent ashore to investigate.

Three hours later they brought the news that the camp was deserted, the tents disordered and the chronometer had stopped. Apparently the whole party

Above: Ezcurra Inlet, in Admiralty Bay, South Shetlands
Below: Livingston Island, South Shetlands

had gone off in their motor-boat to survey. It was obvious that they had not intended to be away long and that the weather was fine when they went, for they had left behind their spare clothing and heavy coats. They could have had little food with them judging by the amount found at the camp. Their observation book contained entries up to the day following their landing, so that they must have been away a week. An air of tragedy descended upon the ship. The captain and one or two others returned to examine the camp and beach, but nothing was found, not even a note, and as the wind was freshening they returned on board.

The weather worsened as we lay at anchor and at one o'clock we had to heave up the anchor and put to sea. It was a horrible night for all on board, oppressed as we were by thoughts of the fate of the missing party, and by the heavy rolling. Few got any sleep, and all were glad when it was time to get up. All that day —Sunday—we lay hove to enveloped in fog and with a heavy sea running. The inactivity was awful. What puzzled us was why the whole party had gone in the boat. They had not gone surveying as most of the instruments were left behind. We surmised that they had gone on some sort of pleasure cruise, yet Ommaney had left his camera, and the doctor his gun. Also, judging by the untidy tent, they had left rather hurriedly. One theory was that they had gone off intending to return soon after and had struck a rock, or been hit by falling ice from a glacier, or had been blown out to sea. If they had struck a rock or the engine had failed, then they might have managed to get ashore somewhere, and there was hope of finding them. If they had been struck by falling ice or blown out to sea then there was little hope. Whatever had happened, they must be in a pitiful condition, with little food and no dry clothing.

During the night the weather improved slightly and at five o'clock we were under way. At eight o'clock we anchored four or five miles off Esther Bay, and soon after two whalers were lowered into the water—one to examine another beach and the other to go to the camping site again. I decided to go with the latter, and lowered two cameras into the heaving boat. It was a long way to row in that heavy sea, when one moment we were on top of a wave and the next completely out of sight. We were glad when we found a following wind and were able to put up a sail. As we neared the coast we could see heavy breakers and big surf pounding on the rocky shore. We anchored seventy-five yards off the beach, loaded the pram and, riding on top of a wave, went hurtling for the beach where, in trying to land, we were up to our waists in icy, swirling water. The pram was swamped, and as fast as we bailed it out it filled up again. It was a hard struggle to get the pram out of that roaring surf for our hands and feet were swollen and numbed with cold, but we managed it eventually.

At the camp we found one tent blown down and two in ribbons. Two sea-elephants were in possession of one tent, while a few yards away a number of sea-elephants were covering the food store. On the floor of the tent cameras and personal gear lay submerged in water. The gear was sorted, another depot of food and gear was built, covered with stones, and marked by two big posts covered with red and white bunting. A note was written, placed in a bottle wrapped round with canvas, and nailed to one of the posts. We then pushed off in the surf back to the whaler which was now half-filled with water, and started back to the ship.

Dodging rocks over which the swell swept angrily, bailing out water and soaked with spray, it took us two and a half hours to reach the ship.

Meanwhile in response to a wireless message, H.M.S. *Ajax* which had been on a short visit to South Georgia, the *Penola*, which had also picked up the message, and a whale-catcher came to join in the search and set off in different directions.

Early that evening we were steaming slowly along when, through the glasses, figures were seen moving on a small snow-covered piece of land between two big glaciers. They looked as if they might be men, though it was possible they were penguins. We steamed closer and by seven o'clock we were near enough to be certain that they were men. Everyone was excited and leaning over the rail. A boat was manned and lowered into the water. It was a long but willing pull, for everyone was cheerful now. The sea was choppy and a cold wind was blowing, and with about a mile and a half between us and the ship we became enveloped in driving, biting snow. Owing to our hurried departure, I was inadequately dressed, so that I had little protection against the snow and spray. When the snow squall passed we were a mile from the shore and could see figures running about, and a fire on the hillside which they had lit to attract us, but which we had not seen from the ship. As we neared the shore we ran into some loose glacier ice and saw waves breaking angrily over the rocks. They signalled us not to try to land and four of them pushed off in a pram into the swirling sea. We lay about a hundred yards off the shore, and soon had three of them in our boat; the fourth returned with a sailor from our own boat to pick up the other two. In a few minutes we were on our way back to the ship.

They looked thin and haggard and their faces and clothes were black. We gave them hot coffee from a thermos, and cigarettes. As we had anticipated, they had gone off for a day's run with little food or clothing. The weather had been fine and they had expected to be back in a few hours. When they were some distance out, the motor-boat engine stopped and they drifted into an open bay. Gourlay, the engineer, then began a struggle which lasted almost without ceasing for four days and nights to get the engine to go again. Each time it stopped after proceeding a short distance, and they drifted among icebergs and once near a glacier face. The weather was bad, the boat was tossed about, and lying huddled together they got practically no sleep. On the fifth day, because of shortage of food and water, they left the boat in rough weather, taking everything they had ashore with them. This was managed by Matheson who made repeated journeys in the pram and got them and their gear ashore with such skill that they hardly got a wetting. (Matheson was the only one of the party who showed no signs of distress when picked up.) Two nights later, their boat disappeared and no one saw it go.

Once ashore, they made a shelter by upturning the pram and placing it on walls of snow. They killed seals for food and used the blubber to make a fire. They had a little tea, no sugar or milk, and half a tin of oatmeal which they boiled with the seal meat. This was their only food until we picked them up. During the ten days they were away only two days were fine; the rest were wet and cold. Fortunately they had two sleeping bags with them, which Matheson altered to make a bag to hold four.

As soon as we got them back on board, H.M.S. *Ajax* left us for the Falklands, the whale-catcher returned to its factory ship and next morning the *Penola* sailed off towards Deception Island. The rescued men recovered rapidly and after a few days showed few signs of their recent experience.

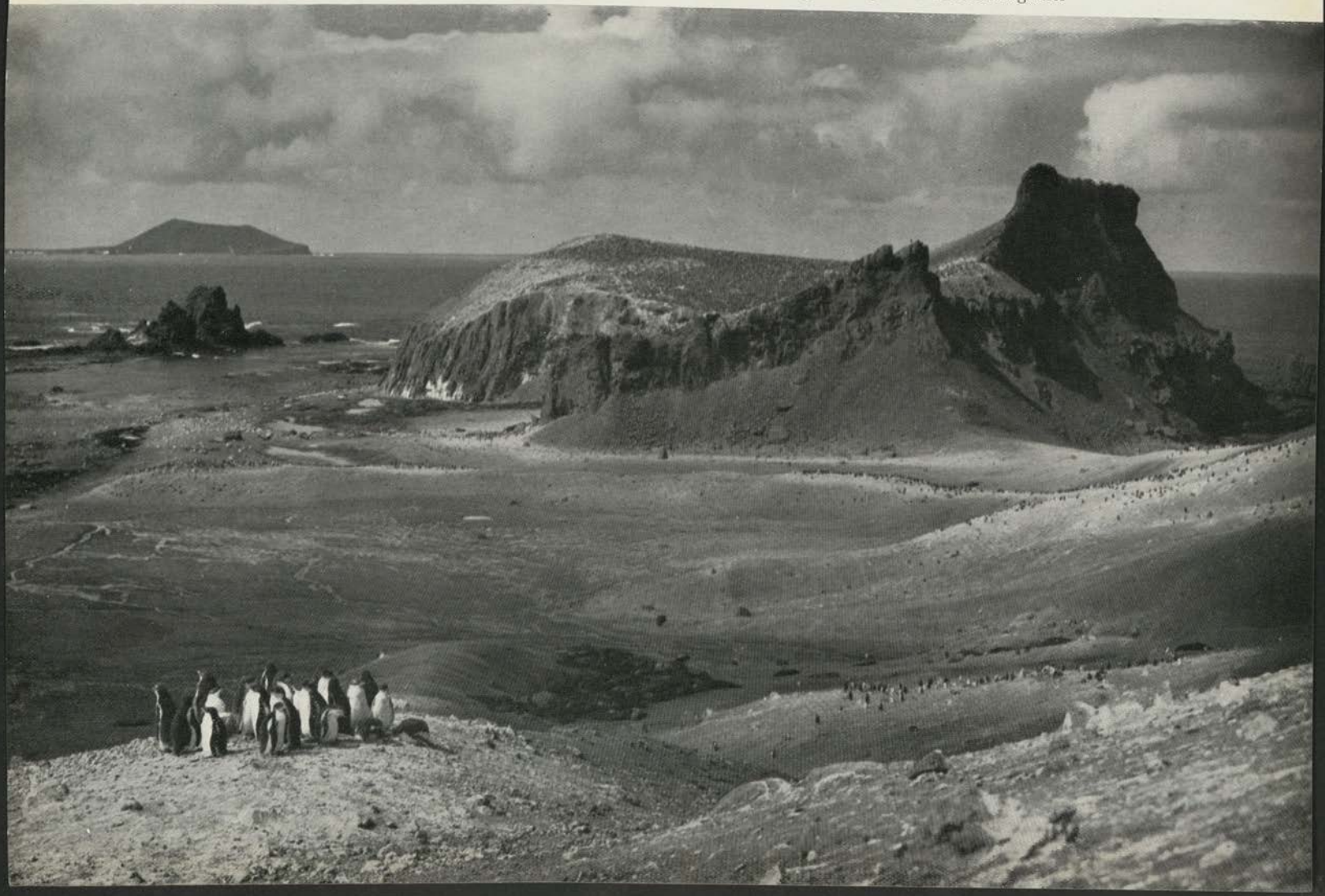
There was little time left to us for surveying now. Back in Admiralty Bay, a party of eight of us went off in a whaler one calm day when the sea was like a mirror and clouds obscured the sun. Our object was to visit as many beaches as possible to look for seals and anything else of interest. There was a lot of glacier ice in the various bays we visited, where we counted the seals, mostly Weddell, and collected geological specimens, lichens and grass. In the afternoon we reached the mouth of Ezcurra Inlet where some of the finest scenery in this area was to be found, but although from a hilltop I got a good view of this magnificent scenery, no sun came out to relieve the general greyness. We returned in fine style rowing in a sea so calm that every detail of the mountains was reflected in it, and by the time we tied up alongside the *Discovery II* we had rowed about twenty miles.

We remained weather-bound in the vicinity of Admiralty Bay for some days. Fog enveloped us and high winds shook the ship violently and filled the air with sea spray. When we could move we made for a group of small islands in the vicinity of Elephant Island where Shackleton's party had lived through the winter under upturned boats. One of my greatest wishes was to land on Elephant Island, but it was never granted. When in a boat and a long way off a day or so later, I saw it bathed in sunshine and looking very beautiful, my longing was painful to bear. One valley, down which a glacier poured, looked lovely with its perpendicular sides terminating in high ice-capped peaks, and I yearned to be near enough to photograph it. We visited a number of small islands, including Aspland and Gibbs—where we found a Ring penguin rookery. At the back of the rookery were some fine ice cliffs which I was able to photograph from a cleft in the rocks in which a few penguins were nesting. We returned through the rookery and through pools of thick slime, and were careful to avoid disturbing the penguins which were panting on account of the unaccustomed heat. We returned on board carrying an odour impossible to describe.

That afternoon we made for Clarence Island, forty miles away, and arrived there in the evening and anchored. The weather was cloudy, but the next morning I was called at five to find the sun shining and the island, with its vertical ice face rising to a height of nearly 5000 feet, looking very beautiful indeed.

About noon a party of us started to row the five miles to the nearest landing. When we were half way to it we ran into a school of Sperm whales and were glad when they had passed us by and we were able to continue our way freely. The landing place was a small, steeply sloping, pebbly beach with rocks rising vertically a few feet from the water's edge. At the base of the rocks, and in the water, lay huge chunks of ice which had fallen from a hanging glacier immediately overhead. To get ashore, one had to pass under this glacier, from which ice might have fallen at any moment. Farther ashore we found many Ring penguins and a solitary pair of Rocky penguins nesting and looking most disconsolate. The island was thickly covered with ice, and in the time at our disposal we climbed as high as we could.

The Lion's Rump on Livingston Island, its surface covered by many thousands of penguins. In the foreground, a group of young Gentoo penguins; behind them (and to the right), a herd of moulting sea-elephants huddled together



From Clarence Island we sailed to the South Orkneys, and anchored in Scotia Bay, where we were to get sights. The following day was a Sunday, and as there was little to do on board many of the crew went ashore to fraternize with the Argentines.

On one side of the narrow strip of land on which their hut was built, rocks rose vertically to a height of four or five hundred feet. At the top a wind vane and anemometers had been erected but had been wrecked in a few days by the high winds. A wire rope had been attached to a rock at the top and left dangling down over a steep gully. Thinking this would be a good spot for photographs, Matheson and I began to climb up the rope. The gully was a sheet of hard, smooth ice on which my boots, having no nails in them, made no impression; after going some distance I twice slid down the rope at a great rate to the bottom. Matheson, who had nails in his boots, carried my cameras strapped to his shoulders. I was determined to get to the top and began once again the arduous and nerve-racking climb. We had literally to pull ourselves, hand over hand, up to the top, with our feet often slipping from under us. At times I felt I could not hang on any longer, but to have let go would have meant being smashed to pieces on the sharp rocks. I was heartily glad when we reached the top and I was standing on the flat surface of the glacier, and able to give my swollen and aching hands a rest. It was a good vantage point, and from the middle of the glacier which was only moderately crevassed, I got a good view of the *Discovery II* nestling in a bay surrounded by glaciers. The climb down was as hazardous as the climb up and rather more difficult, for we could not see where we were putting our feet.

After we had said good-bye to the Argentines in a mixture of English, Spanish and French, we sailed for Graptolite Island, ten miles away. We ran into fog and many icebergs, and after we had twisted our way in and out of them, anchored half a mile off the island. On the way ashore I got a glimpse of an Albino penguin, but did not mention it to the others, and on landing made my way alone over the top of the island to the place where I had seen it. It was a beautiful bird, pure white except for its beak and its pale grey eyes with black pupils. It looked more graceful than its companions and after filming it, I debated whether or not to take it back for a specimen. I disliked the idea of killing it. When I met Ommaney soon after, he too thought it a pity to kill the bird, so I decided to let my struggling burden go free.

The object of our visit to Graptolite was to look for fossils which give the island its name, and when it was time to return on board everyone was struggling under the weight of sacks of rock. The island was teeming with animal and bird life.

We left Graptolite and steamed to various parts of the South Orkneys, making landings to count seals, but nothing outstanding occurred, and as we were by now short of food and fuel oil a course was set for that very welcome spot the Falklands. This ended the major portion of our surveying activities.

CHAPTER XII

AU REVOIR TO ANTARCTICA

THE LAST year of the 1937-9 Commission included the making of repeated rectangular trips from Cape Town, west to 0° longitude then due south to the ice edge, east to the twentieth degree of longitude, and north to Cape Town again. The first of these trips was begun in May 1937, when winter was already well advanced. We did not relish the idea of these repeated voyages which were undertaken to study the seasonal changes in the sea water.

We pushed south in the rapidly shortening days of cold and darkness, and reached fifty-nine degrees south before encountering pack ice. We groped our way through the ice eastwards, then turned north at twenty degrees east, as arranged.

The July trip in 1938 was gruelling, with continuous blizzards and storms. I had never before seen such big seas as those which swept across the deck on that journey. I spent as much time as possible on deck—where everything was covered with about nine inches of ice—looking for photographs. One afternoon the waves swept over the poop and filled the deck almost to the top of the rail. The water then ran from side to side with each roll and with such force as to send up clouds of spray to a height of ten or twelve feet each time it hit the ship's side. With the wind screeching and blowing snow in our faces with the force of a sand blast, and the air temperature twenty degrees below freezing, it was difficult to operate the camera.

About the same time the ship's cook was thrown violently by the rolling, and was laid up with two or three ribs broken. When the ship was rolling madly and life was really hell, an ambition would surge up within me. It was to charter the *Queen Mary*, take the *Discovery II* in tow to the Antarctic, then cast her adrift in a storm, and, from a comfortable armchair on the motionless *Queen Mary*, watch the thing roll!

These runs were monotonous and very trying. Punctuated by storms and individual incidents, they took an average of a month to complete. As winter advanced, so the ice edge was met farther north.

In the poor light of the winter cruises, there was little I could photograph. When in the region of the pack, which was usually of the pancake variety, the sun was too weak and watery on its rare appearances to produce good contrast. The cold was intense and painful, and, because the ship was caked with ice and heaved in the rough seas, stations were long and difficult ordeals. During the July cruise we had to abandon one station at the ice edge after struggling for eight hours with our frozen gear.

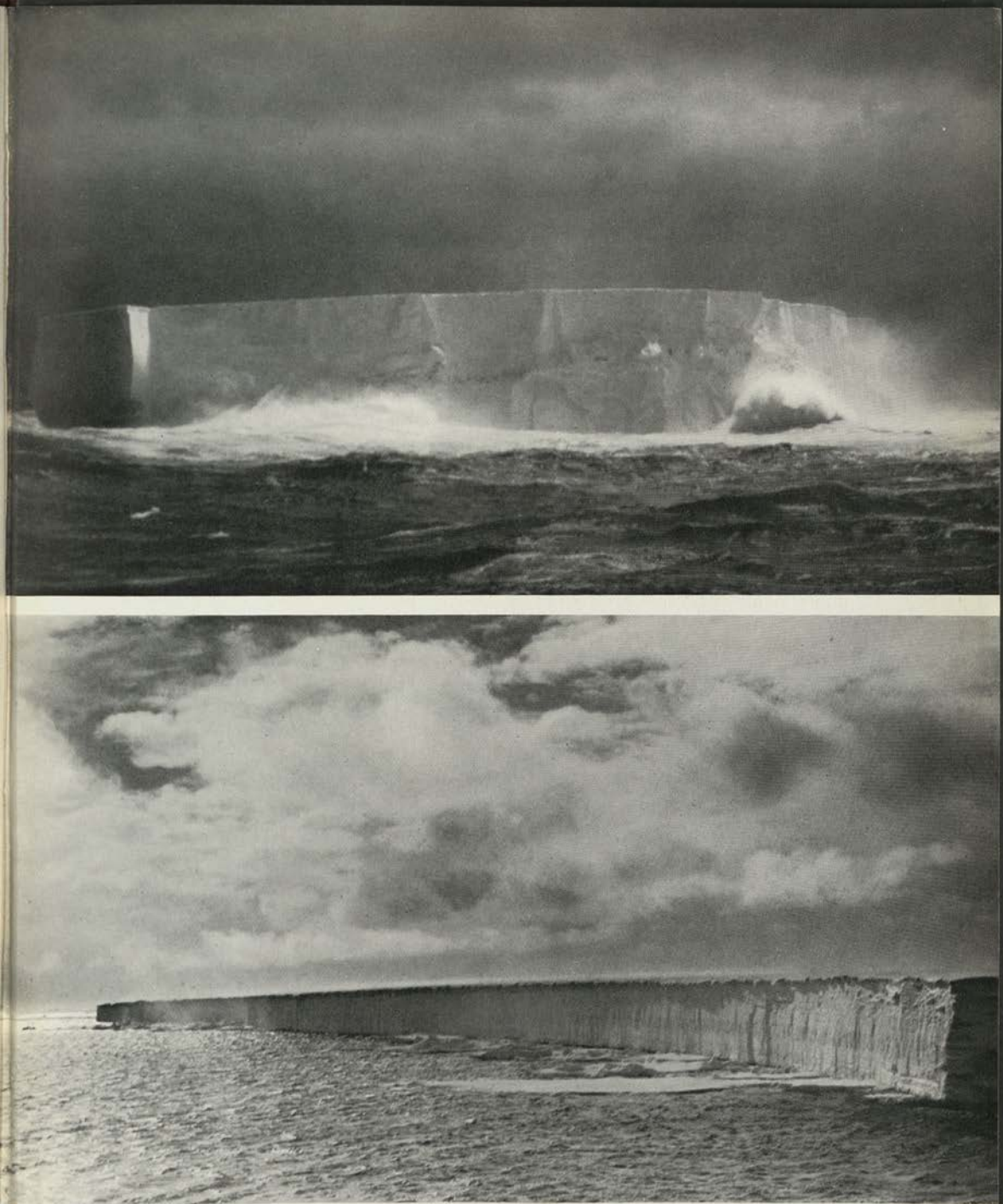
When the ice broke up in the spring, the pack receded rapidly, and in one period of six weeks it receded 750 miles—a rate of eighteen miles a day.

In the darkness, icebergs were a constant danger and too frequently we were shaken from our troubled slumbers when the ship suddenly shuddered violently as it went astern to avoid collision with an iceberg. While doing a station one dark and stormy night I was staggering along the deck puzzled by what I thought was a queer arc of light given off by the lamp on the fo'c'sle head where water bottles were being lowered. I peered over the ship's side, and suddenly realized that an iceberg was bearing steadily down on the ship, and only a few yards away. I raised a shout, in which the others on deck joined, and the ship's engines were quickly put full astern; in a few minutes we were clear of the threatening mass. The noise of the ship's engines going astern brought everyone tumbling on deck. Within half a minute more the berg must have struck us.

Diligent and unrelenting lookout had to be kept for icebergs, and a lookout man was posted on the fo'c'sle head. During the hours of darkness in rough weather his was an unenviable and lonely task. One night the ship was stopped by what was thought to be the edge of the pack ice. When daylight came the 'pack' was found to be the edge of a large tabular iceberg stretching to the right and left of us as far as the eye could see. It was decided to measure it, and it was found to be forty miles long, twelve miles broad and about a hundred and fifty feet high. This was the largest iceberg we measured, although we must at times have passed others which were bigger. The *Discovery* recorded one seventy miles long during her commission, and while I was at South Georgia whalers brought in reports of an iceberg off the island which was a hundred miles long—that is, as long as the island itself. We often passed hundreds of icebergs in a day, and there were days when we must have passed thousands. I remember there were once seventy in sight together.

The great ice barriers surrounding the Antarctic Continent were the birthplaces of the tabular icebergs which drifted backwards and forwards year in and year out. Free to move in summer, held fast in the frozen sea in winter, the bergs could last many years before being so reduced by sea and air erosion that they would finally disintegrate and disappear. Those that drifted into warmer waters melted and disappeared more rapidly. The Great Ross Barrier, which is four hundred miles long and flat on the surface, might have been the source of the icebergs forty to a hundred miles long.

One unpleasant experience I remember, although I was not on the *Discovery II* at the time, was our coming up to a strange object when it was dark and snowing. As visibility was almost nil it was considered imprudent to try to move farther, so the ship was stopped until daybreak. It was then found that the ship was right alongside a huge iceberg which towered above her. I remember, too, our passing a tabular iceberg in heavy head seas. We were barely making headway, and the waves were dashing against the sides of the berg—which was about two hundred feet high—and sending up showers of spray above its top. I was on deck with my camera at the time, slipping and sliding dangerously with the violent motion of the ship, hoping against hope that the sun would come out. My luck was in, for the sun broke through a small gap in the clouds and lit up the berg. I steadied myself against a lifeboat—and a moment after I had released the shutter the sun disappeared and it was dark once more.



Above: Stormy seas breaking over the sides of a huge iceberg
Below: Tabular iceberg in the Weddell Sea

At one time, when the ship was thickly encrusted with ice and we were rolling alarmingly, I climbed up to the flying bridge to try to photograph the rolling. Here too, all was ice, and the big arcs made by the ship with every roll made it an unhealthy and dangerous spot. Somehow I managed to crawl along the rail to the centre of the bridge, where I climbed a thin steel stanchion, and perched there leaning over the wind dodger, I tried to work the camera with one hand while holding on to the stanchion with the other. The wind was terrific, the cold made my eyes and nose run, and my already cold face, hands and feet soon lost all feeling. Most of my efforts had to be spent in holding on and preventing myself from going overboard. Once when trying to get a picture and when all my weight was on my one hand gripping the stanchion, the roll was so great and long that I could not hold my weight any longer and I felt my grip weakening and my fingers slipping. In a matter of split seconds I would have been hurled over the side into the icy, storm-lashed cauldron to certain death—for I knew I could neither be picked up in that sea nor would anyone even see me go overboard. Then the ship began to pick up again and to relieve the strain on my frozen hand. I got a photograph—but not of the ship's greatest roll.

I made many attempts to record the violence of the weather. Wrapped up and clutching my camera close to me, and with head bowed to dodge the fury of the wind and blinding spray, I tried to cross the fore-deck to the fo'c'sle head. As each wave roared across the deck I would hang on to the frozen life-lines for dear life. Then, drenched to the skin, with hands and feet and face numb and almost useless with cold, I would climb the iron ladder to the fo'c'sle. Exposed to the full fury of the storm, I would crouch and hang on, trying to save myself and my camera from going overboard. Sometimes the soaked and ice-covered camera refused to work, and I would try to thaw it out with the warmth of my body. If that failed I would return to my cabin to thaw it out, then try again. Eventually with my precious photograph taken, I would struggle back to the ward-room or laboratory and experience a feeling of great relief when safely inside. I would pace up and down, bent almost double and pushing my fingers through my hair in an effort to get some relief from the excruciating pains of a returning circulation. Later I would feel fine, and, unable to wait longer, I would dash below deck to the dark-room to develop my prize.

The dark-room was about six feet square and was situated amidships. Its only ventilation was from an air vent leading from the forward deck, down which sea-water and cold air would pour. Behind the locked door I felt alone and apart from the rest of the ship as I developed my plates. Holding on with one hand, I balanced the developing dish in the other. There was no need to rock the dish, for the rolling ship did that. My difficulty was to keep my feet and to keep developer in the dish. I kept my thumb in the dish, and when it became dry I knew it was time to add more developer. Working sometimes for long hours on end with the temperature only just above freezing, the air became stuffy and my head throbbed. Flung violently about with the rolling, bruised, deafened by the noise of crashing waves on the deck above my head, drenched by icy sea-water forcing itself through the closed ventilator and down

my neck, I struggled to keep my plates safe and free from damage. Twice in one afternoon I was thrown violently to the floor, and was finally pitched head first into the dark-room lamp. In the darkness, the noise and motion became exaggerated and each time a wave dashed on board it seemed as if the ship was being smashed to pieces, and every roll seemed as if she was turning over. I remember one particularly heavy crash being followed by a continuous clatter over my head, and I hurried upstairs, down which sea-water was pouring, to investigate. I found the laboratory filled with water, and wooden cases and masses of water-sample bottles swirling around. Such were the joys of photography, but they helped to keep me sane and the thrill of achievement made the hazards worth while.

The question has often been asked me, why did I, knowing as I did the hardships, the rigours of the climate and the difficulties, return repeatedly to South Polar regions for a period covering a total of fifteen years Perhaps it might be truthfully said that it was because I was well and truly 'round the bend', and I sometimes feel that I must have been. But the thought of the *Discovery II* sailing for Antarctica and leaving me behind made me feel ill. I just had to sail with her. I felt that in my scientific work, and more particularly in my photography, I had a job to do to the best of my ability, and which I was going to see through to the end. I felt I was doing a worth while job, and infinitely preferred it to catching the 8.50 a.m. train to town and the 5.10 p.m. train back home. Besides, the ice called me insistently, and I answered the call willingly. I loved the mountains, their beauty, their grandeur, the loneliness, and the penguins which made their nests on those bleak shores. But I had no love for waltzing on a storm-lashed ocean. In that I found no pleasure, nor did I find any on those rare occasions when the sea was an oily calm, for that bored me. No, it was the ice that called, and it was to the ice that I returned.

By January 1939 the pack had receded to about sixty-eight degrees south and by March to seventy degrees south, that is, to the Continent itself. This was the last of our repeated journeys and also the last journey of the *Discovery II* to Antarctica. Many times during her wanderings in South Polar seas attempts had been made to discover new land, but success had been denied us. On this, our last trip, when in sixty-nine degrees, a report of 'pack ice ahead' came from the bridge. As we drew closer, however, we found the ice to be not pack, but barrier, which stretched on either side as far as the eye could see. We were greatly elated and in the ward-room everyone was laughing and joking. The weather was bad, and a heavy sea dashed against the barrier with tremendous force, and sent clouds of spray high into the air. The sky was filled with black clouds which added further to the fierce, stormy and impressive scene. Over the barrier, ice-blink pierced the clouds, and the depth of the sea was found to be 1500 metres, showing the barrier to be very much afloat. Next morning we followed the barrier in an easterly direction. I was called at half-past five to take photographs, but the weather was dull. We passed through streams of brash ice which grated noisily along the sides of the ship and saw large numbers of tabular icebergs which had broken from the barrier. In the afternoon we wound in and out of large tabular bergs and entered a bay in the barrier. It was a marvellous

and thrilling sight, and I longed for the sun to break through to make this wonderland of ice sparkle and shine. But all was a uniform grey.

At two o'clock that afternoon I was called to photograph new land. Yes, new land—for in the distance to the south lay a range of low mountains. Looking for somewhere to land, we steamed along part of the barrier which was only twenty feet high. On it were two large Emperor penguins which were obviously excited at seeing the ship. Later we came to a place where the ice sloped down to the sea, and the motor-boat was lowered into the water. I was delighted, for near by was a large group of Emperor penguins and a number of seals. But the motor-boat would not work, and, as all attempts to make it do so failed, we reluctantly decided to abandon the idea of a landing. To think of those Emperor penguins being so near yet so far made me feel ill.

When I came up from the dark-room later I found that the clouds over the barrier had lifted, and the sun was setting in a blaze of gold and crimson glory. The barrier, which had been so grey all day, was now a thing of transcendent beauty. Its irregular and deeply indented face, lit up by the dying sun, was now a bright rose pink. Away from the barrier stood a large tabular iceberg. This too, was rose pink—a wonderful sight against the dark sky. Next day, Sunday, was dull and overcast as we steamed along the barrier. Farther along the barrier we could see patches of sunshine, but in the vicinity all was grey. One tall and beautiful iceberg which was jammed against the barrier and towered above it, would have made a superb photograph. Soon after passing this we got our second glimpse of land and, continuing along the barrier through belts of pack ice, we came to a big bay. The light improved, and we saw a gentle slope of land about ten miles off. It was piercingly cold with the thermometer showing twenty degrees of frost, and a strong, bitter wind was blowing. When we prepared to stop we found that the anchors were frozen in their pipes and could not be moved, and as no landing place could be seen the ship was turned out of the bay again.

We ran into an area where the sea was rapidly freezing. The ship was stopped in slush and pancake ice and a dredge was put over the side. When it was hauled on board an hour later, it was full of mud and rocks. The sky was darkening and the wind increasing, so we steamed eastwards, intending to make a further attempt at landing later. But on the following morning a blizzard was blowing and the weather was getting rapidly worse. The ship, now thick once more with frozen spray, was turned away from the land. With our back at last to the Antarctic Continent and with winter rapidly advancing, a northerly course was set.

We ran into pack ice, so I asked the captain if he would take the ship in a small circle while I got on to the ice to get some cinema and still photographs. He agreed, and I was helped over the side (rather readily, I thought) with my cameras; Briggs, I believe, came with me. We made our way on to a flat floe about ten feet square as the ship moved off, but the captain's idea of a small circle and mine did not coincide, and the ship slowly disappeared out of sight. Left there, hardly daring to move as the floe heaved up and down on the swell, we got colder and colder. Unpleasant thoughts of Killer whales appearing and taking us for seals passed through my mind—and what if the ship went off and did not return? But return she did, slowly and at long last. I had

The author: a self-portrait

kept the cinema camera tucked next to my body to keep it warm, and I brought it to bear on the ship as she approached. My hands were almost useless with cold, but I managed to take one or two shots. We reached the ship's side again, and were hauled on board (not so readily, it seemed to me) where we endeavoured, with much pain, to thaw out. Those on board thought it a great joke that we had been left there and had missed our afternoon tea, but it took a long time before the joke dawned on me.

The journey north was one continual battle against head seas and constant bad weather, and we made very slow progress. One day a huge iceberg appeared out of the fog, very close to the ship, and was hardly distinguishable from its surroundings. We took this as a cue to expect more bergs and at night reduced our speed. The constant rolling and pitching allowed us practically no sleep, and in the mornings I got up as weary as when I went to bed. The strain was terrific and after the years of unrelieved mental and physical effort I now felt I was nearing the end of my tether. Stations were irksome and we chafed at every little delay.

At long last we reached Cape Town. Then came the easy but tedious journey through the tropics, during which the constant and unfailing topic of conversation was our future plans. Some members of the crew aspired to a 'nice little widow with a nice little pub'. They were all going to get a job ashore; they were all finished with 'life on the ocean wave'; but in one's heart one knew that they would all drift back to the sea. The last days before reaching London were spent in making the ship spick and span. Everyone joined in painting and polishing and on all sides one heard laughter and song.

With the *Discovery II* tied up under the shadow of Tower Bridge we bade our shipmates good-bye and good luck. Danger and hardship shared had given us a common understanding and had produced a mutual respect. We promised to meet again, but war followed and some, alas, have crossed the vale and we'll meet no more. It was a hard life and a great adventure. Now, more than ten years after, the voice of the frozen south calls me and my camera still.

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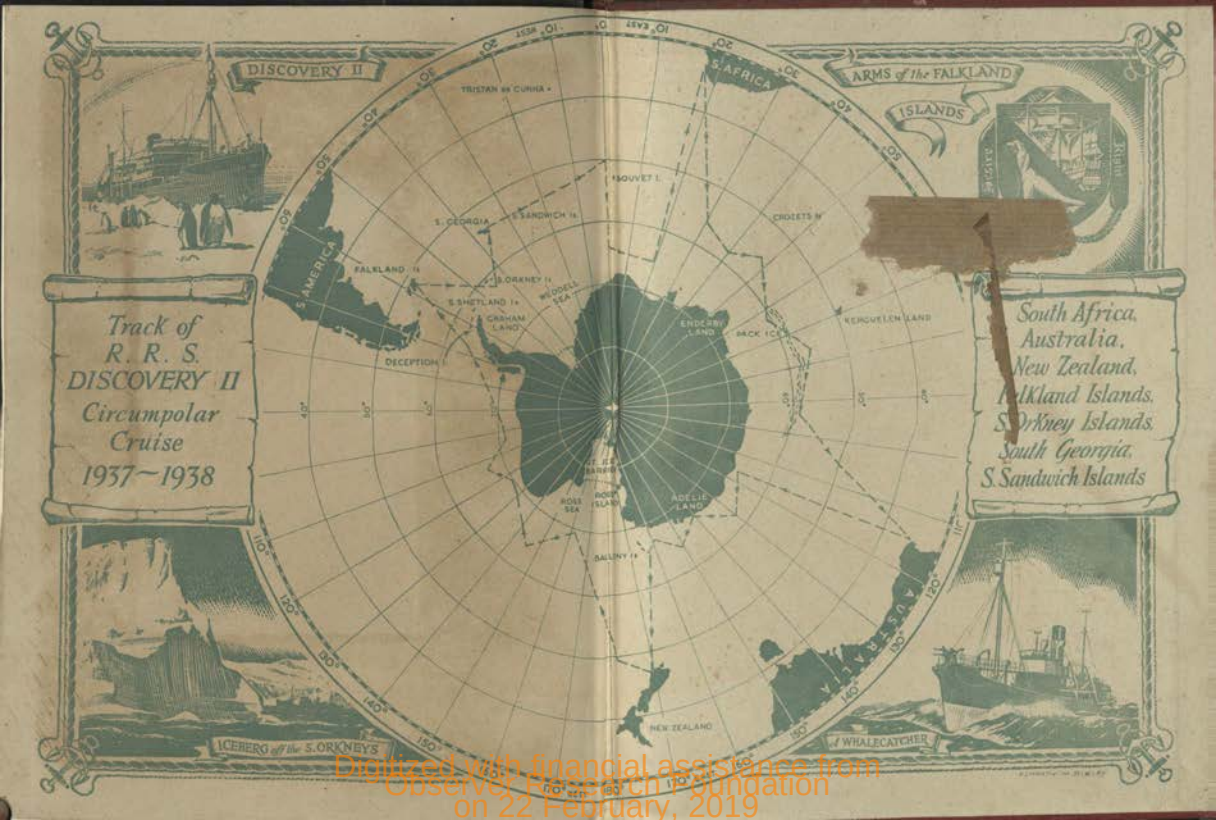

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